

# **Educational attainment of blind and partially sighted pupils**

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## **Glossary**

**ASN** Additional Support Needs (Scotland)  
**CSP** Co-ordinated Support Plan  
**CVA** Contextual Value Added  
**DCSF** Department for Children, Schools and Families (England)  
**DENI** Department of Education Northern Ireland  
**FSM** Free school Meals  
**GCSE** General Certificate of Secondary School Education  
**IDACI** Income Deprivation Affecting Children Index (England)  
**IMD** Index of Multiple Deprivation  
**KS3** Key Stage 3  
**KS4** Key Stage 4  
**LASIS** Local Authority Statistical Information on Schools  
**LA** Local Authority  
**MLM** Multilevel Modelling  
**MSI** Multi-sensory Impairment  
**NDC** National Data Collection (Wales)  
**NPD** National Pupil Database  
**PLASC** Pupil Level Annual School Census  
**S4** Fourth year in Scottish secondary school  
**SA** School Action  
**SA+** School Action Plus  
**SAPC** Scottish Annual Pupil Census  
**SCQF** Scottish Credit and Qualifications Framework  
**SEN** Special Educational Needs  
**SLS** School Leavers Survey (Northern Ireland)  
**SQA** Scottish Qualifications Authority  
**VI** Visual Impairment

## Notes on Report Tables

The tables reproduced in this report share a general pattern and their presentation follows a number of general conventions.

Tables showing percentages specify whether they are cell, column or row percentages. Almost all per cent figures and means are rounded to the nearest full number (the exception being the tables reporting the prevalence of visual impairment).

0 (nil) in the context of a percentage figure indicates a value greater than 0, but less than 0.5, which is rounded down.

(blank) a blank space where a percent figure is expected indicates that no cases correspond to that cell.

\* (asterisk) indicates that a figure has been omitted due to a very small cell size (fewer than 25 cases).

## Executive summary

The Royal National Institute of Blind People (RNIB) commissioned NatCen to report on the educational attainment of blind and partially sighted pupils in England, Wales, Scotland and Northern Ireland. The aim of this study was to improve our understanding of the effect of visual impairment on educational attainment in secondary education. This report describes the study and its findings.

The data sources used in this study were the National Pupil Databases (NPD) for England and Wales, the Northern Ireland School Leavers Survey (SLS) and the Scottish Annual Pupil Census (SAPC).

Throughout this report blind and partially sighted pupils are defined as pupils with a recorded special educational need (SEN) due to a visual impairment (VI). As far as possible, the study differentiated between pupils who experienced a visual impairment as their sole SEN ('VI only'), pupils who experienced a visual impairment and an additional SEN ('VI and additional SEN'), and pupils with SEN other than a visual impairment ('Other SEN'). The educational attainment of these groups was compared with pupils without SEN ('No SEN'). However, using Scottish data it was not possible to differentiate between young people with 'VI only' and young people with VI and an additional SEN.

The principal focus of the study was to measure and examine attainment at GCSE<sup>1</sup> level (Key Stage 4; KS4) in England, Wales and Northern Ireland and Standard grade level in Scotland. Pupils are typically aged 16 when they take these exams. In addition, attainment at the end of Key Stage 3 (KS3), when pupils are typically aged 14, was explored using data for England and Wales. Attainment data for this stage, or equivalent, were not available for Northern Ireland or Scotland.

We used the following indicators to measure educational attainment. For England and Wales at KS3, we used the total point score based on assessments in English, maths and science. At KS4 for England, Wales and Northern Ireland, we used

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<sup>1</sup> General Certificate of Secondary Education.

Threshold 2, which measures whether a pupil had obtained five or more GCSEs at grades A\* to C. For Scotland, which has a different education system, the threshold was school leavers obtaining five or more Standard grades at Credit level.

Findings are now presented for each of the four countries in turn.

## **England**

In 2007, 91 per cent of KS3 and KS4 pupils had no recorded SEN, while 0.07 per cent in both KS3 and KS4 were recorded as having VI as their only SEN and a further 0.09 per cent in KS3, and 0.08 per cent in KS4, had VI recorded along with another SEN. The remaining nine per cent of pupils in each KS had one or more recorded SEN other than VI. A little over half of all blind and partially sighted KS3 and KS4 pupils experienced an additional SEN. The most frequent additional SEN recorded for pupils with VI was moderate learning difficulties.

There were some differences between pupils from the four categories of SEN status. For instance, compared with pupils without SEN, proportionately more of the pupils with SEN (including those with VI) were boys. Several indicators, such as eligibility for free school meals (FSM) or the level of deprivation in their home areas, suggested pupils with 'VI only', VI and additional SEN and other SEN experienced a greater level of social disadvantage than pupils without SEN. Also, compared with pupils without SEN or with other SEN, proportionately more pupils with VI (with or without additional SEN) were of Asian origin, and a higher proportion of blind and partially sighted pupils did not speak English as their first language.

There were also differences in the overall educational attainment, both at KS3 and KS4, between pupils with and without SEN. Pupils without SEN, on average, achieved the highest levels of attainment. The attainment levels of pupils with 'VI only' were only slightly lower than those of pupils without SEN. But there was a larger gap in the attainment levels between these two groups of pupils and the other two groups: pupils with VI and another SEN, and pupils with other SEN achieved the lowest levels of attainment. There was also typically little difference between these two low-achieving groups. These differences were found when using point scores or the threshold levels.

The majority of blind and partially sighted pupils attended mainstream schools. Of pupils with a statement, only nine per cent of 'VI only' pupils were in special schools, although 45 per cent of pupils with VI and additional SEN attended special schools.

In order to understand better why attainment levels differed between pupils with different or no SEN, we measured the effect of SEN status on school attainment while also taking into account other differences in the characteristics of pupils. These differences included their gender, ethnicity, first language, FSM eligibility, prior attainment and the level of deprivation of the area where the pupils were living.

The analysis showed that having a SEN decreased both KS3 and KS4 point scores. However, once attainment at the previous Key Stage (KS2 or KS3) was taken into account, the point scores of pupils with 'VI only' no longer differed from those of pupils without SEN. The point scores of pupils with VI and additional SEN or of pupils with other SEN, however, remained lower. This leads us to conclude that the attainment gap between pupils with 'VI only' and pupils without SEN probably was already present before the pupils began secondary school. It then remained largely unchanged in later years.

We also explored the effect of SEN on the **progression** that pupils made between KS3 and KS4, looking again at point scores. To do so we compared actual KS4 point scores with scores that were predicted on the basis of the pupils' KS3 results. We also again took into account pupil characteristics. This is a method widely used in education research and enables us to observe whether a pupil's performance decreased, improved or remained the same between the Key Stages. Our results showed that pupils without SEN and with 'VI only' typically maintained their previous performance levels. However, pupils with VI and additional SEN performed less well than predicted, as did pupils with other SEN. The earlier analysis had already established that these pupils performed less well than others at KS3. The progression analysis suggests that they fell further behind during the years between KS3 and KS4.

A separate analysis sought to determine the effect of schools on pupils' performance. Specifically, we considered the effect of the type of school, the pupil-teacher ratio, and the proportion of a

school's pupils who received free school meals. Taking into account the pupils' characteristics, only the type of school attended affected pupils' attainment. Thus, compared to community schools (the most common school type in England), pupils who attended voluntary aided or controlled, or foundation schools performed better, whereas pupils in special schools performed less well. There are various reasons why this might have been the case. Our analysis was unlikely to account for the many factors that influence how well pupils perform in different school environments. We therefore caution against reading too much into these results.

## **Wales**

As in England, pupils with visual impairment represented a comparatively small group of pupils in Wales; approximately 0.1 per cent at KS3 or KS4 had 'VI only', while a further 0.1 per cent at each KS had VI and an additional SEN.

As in England, pupils with SEN were more often boys than girls and more likely to experience material deprivation. Educational attainment also varied markedly with pupils' SEN status. Pupils with 'VI only' performed less well than pupils without SEN but the attainment of pupils with VI and additional SEN and pupils with other SEN was markedly below that of the other two groups of pupils.

At KS3 and at KS4 the analysis revealed that boys and young people who were eligible for FSM achieved lower key stage results than other pupils. When prior attainment (that is, at KS2 or KS3) was taken into account, pupils with 'VI only' performed as well as pupils without SEN at both key stages. As for England, this leads us to conclude that the attainment gap between pupils with 'VI only' and pupils without SEN probably was already present before the pupils began secondary school.

Between KS3 and KS4, pupils without SEN performed slightly better than would have been predicted by their KS3 results. Pupils with 'VI only' and pupils with VI and additional SEN performed as predicted, but pupils with other SEN fell behind the results that would have been expected based on their KS3 attainment.

## **Northern Ireland**

The analysis of school attainment in Northern Ireland data focussed on **school leavers**. Unlike for England and Wales, prior attainment data were not available for pupils in Northern Ireland. Data were also not available for leavers from special schools. The data refer to when the young person left secondary education, which in some cases may have been after sitting A-levels.

Young people with 'VI only' accounted for 0.1 per cent of Northern Ireland's school leavers, while leavers with VI and additional SEN accounted for a further 0.05 per cent. About 13 per cent of leavers had other SEN.

School leavers with 'VI only' or VI and additional SEN differed from other leavers on a number of socio-demographic variables and there were also differences in attainment by SEN status. Again, the performance of pupils with 'VI only' was somewhat below that of pupils without SEN but much higher than that of pupils with VI and additional SEN or pupils with other SEN.

Once we took into account differences in the characteristics of school leavers, such as their gender or community background, and of their schools, leavers with 'VI only' achieved similar levels of attainment to those of leavers without SEN. However, the educational attainment of school leavers with VI and additional SEN and of school leavers with other SEN was below that of leavers without SEN.

## **Scotland**

As in Northern Ireland, school attainment data in Scotland are available for school leavers, recorded in the Scottish Annual Pupil Census (SAPC). The census showed that, in 2007, 0.2 per cent of school leavers were blind or partially sighted (with or without additional SEN), five per cent of school leavers had other SEN, while the remaining 95 per cent of leavers had no recorded SEN. The SAPC only identifies three SEN categories, namely visual impairment, other SEN and no SEN. Pupils with a visual impairment may also experience other types of SEN.

As in the other countries, the individual characteristics of leavers differed with SEN status: more leavers with SEN than without SEN

were boys or lived in deprived areas. Leavers' educational attainment also varied with SEN status. Leavers with VI and pupils with other SEN were less likely to obtain five or more Standard grades at Credit level compared with those without SEN.

The investigation of the differences in attainment levels of pupils with and without SEN, including visual impairment, took account of the pupils' gender and disability status. It also controlled for differences in the features of the schools that leavers attended and the area they lived in. The differences included the school type, the percentage of the pupils at the school who were registered for FSM, the level of deprivation in the pupil's local area, and whether the area was urban or rural. Male school leavers, school leavers with a disability, those attending a special school or a school with a high proportion of pupils eligible for FSM, and leavers living in an area of high social deprivation tended to achieved fewer Standard grades than leavers without these characteristics. Having a SEN (whether VI or other SEN) also, on average, reduced the number of Standard grades. School leavers were more likely to achieve five Credit Standards if they lived in a large urban area.

### **Comparisons between countries of the UK**

Although a direct comparison of attainment levels should only be attempted with considerable caution, the statistics for all four countries show similar patterns: highest attainment levels for pupils without SEN, lower attainment levels for pupils with visual impairment and lowest attainment levels for pupils with other SEN.

### **Conclusions**

The study found that visual impairment did make a difference to educational attainment, but that the strongest effect was that of other or additional SEN. This effect was sustained even when socio-demographic differences between pupils with and without SEN were taken into account.

Analyses of English, Welsh and Northern Irish pupil data revealed stark differences in educational attainment between young people with visual impairment as their sole SEN and those with visual impairment and additional SEN. In general across the three countries, pupils with 'VI only' typically performed better than pupils who had a visual impairment and an additional SEN. Pupils with 'VI only' also performed less well than pupils without SEN, but

the performance gap was typically small and could be attributed to lower prior attainment in England and Wales.

For England and Wales, the study explored both KS3 and KS4 results. In Northern Ireland, the study investigated school leaver results. Scottish data also focus on school leavers, but do not differentiate between school leavers with 'VI only' and school leavers with VI and additional SEN. Their analysis showed that the attainment of blind and partially sighted leavers was below that of leavers without SEN and comparable with that of leavers with other SEN. This was also true after differences in the characteristics of pupils with and without SEN were taken into account.

In England and Wales, the educational attainment gap between pupils with 'VI only' and pupils without SEN was smaller than the gap between pupils with VI and additional SEN and those without SEN. Attainment gaps appeared to emerge before pupils had moved onto secondary education and certainly prior to pupils being assessed at KS3 or KS4. This educational 'deficit' then appeared to persist during KS3 and KS4. However, whereas pupils with 'VI only' progressed between KS3 and KS4 as well as pupils without SEN (who achieved the highest level of attainment), in England pupils with VI and additional SEN and pupils with other SEN fell further behind their already better performing peers.

# 1 Introduction

## 1.1 Background

The Royal National Institute of Blind People (RNIB) commissioned NatCen to report on the educational attainment of blind and partially sighted pupils in England, Wales, Scotland and Northern Ireland. The aim of this study was to improve our understanding of the effect of visual impairment on educational attainment at critical junctures during secondary education. To do so, the study compared the attainment of visually impaired young people with that of young people without visual impairment, including young people with other special educational needs. Attainment levels were estimated and reported separately for young people with different types of SEN or no SEN and statistical analysis isolated the effect of visual impairment on school attainment. The approaches to analysing data about pupils and school leavers were similar for the four countries.

The principal focus of the study was to measure and examine attainment at GCSE level (Key Stage 4; KS4) in England, Wales and Northern Ireland. Pupils are typically aged 16 when they take these exams. In addition, attainment at the end of Key Stage 3 (KS3), when pupils are typically aged 14, was explored using data for England and Wales. Key Stage 3 data for Northern Ireland were not available.

The structure and awards of the Scottish education system are different from those of the other three countries. Examining Scottish attainment data, the study explored the attainment of school **leavers**, including some who had remained in education beyond the age of 16.

Throughout this report blind and partially sighted pupils are defined as those with a recorded special educational need (SEN) due to a visual impairment (VI). An important further objective of the study was to assess the effect of SEN, other than visual impairment, on school attainment. For this reason, the study differentiated between pupils who experienced a visual impairment but no other SEN, pupils who experienced a visual impairment and an additional SEN, and pupils with SEN other than a visual

impairment. However, it was not possible to differentiate between young people with only a visual impairment and young people with a visual impairment and an additional SEN in Scotland.

## **1.2 Data and Methods**

The data sources used in this study were the National Pupil Databases (NPD) for England and Wales, the Northern Ireland School Leavers Survey (SLS) and the Scottish Annual Pupil Census (SAPC).

These are rich sources of data providing information about the educational attainment of pupils, including blind and partially sighted pupils. The data record pupils' SEN status and SEN type, and also include a small number of socio-demographic variables describing the pupils. Typically, these variables are: the pupil's gender, age, ethnic background, first language, free school meal (FSM) entitlement, and an area deprivation indicator for the home postcode. The type of support offered to pupils with SEN is also recorded for England and Wales.

In addition, it was possible to append data describing the schools that pupils attended, including: the school type, pupil-teacher ratios, and the proportions of pupils at the school who were eligible for FSM, had special educational needs, or were of minority ethnic background. Data about both the pupil and the school were important for identifying the key factors driving school attainment. There were slight variations in the content and detail of these descriptive variables between the countries. These will be explained in the relevant country sections of this report.

In order to measure the difference that visual impairment or other SEN made to young people's educational attainment, we conducted two types of statistical analysis: logistic or multivariate (linear) regression. Both types isolated the effect that pupil or school characteristics had on pupils' attainment levels. For instance, these analysis methods allowed the grades of young male pupils to be compared with those of young female pupils. Likewise, they allowed the grades of pupils with different types of SEN (or no SEN) to be compared. Importantly, these comparisons were made while controlling for all other pupil or school characteristics. In other words, these methods filter out the net

effect of a characteristic on school attainment. We were thus able to identify the effect of visual impairment with or without other SEN on school attainment, while allowing for differences, such as in gender or ethnicity, among pupils with visual impairment and pupils without visual impairment.

The main difference between logistic and multivariate regression is that the former is used to compare educational outcomes that are binary, whereas the latter is used to study educational outcomes that are continuous. Examples of binary educational outcomes are whether a pupil did or did not achieve a given number of GCSE grades. An example of a continuous outcome indicator is the sum of the point scores that pupils are awarded for each of their GCSE grades. Logistic regression estimates the odds of a variable, such as a pupil characteristic, making a difference to educational attainment when compared to another pupil characteristic. Multivariate regression, on the other hand, estimates statistical coefficients, which measure by how much educational attainment, such as point scores, change when the pupil or school characteristic changes.

Both methods also estimate whether the observed differences are 'real' and not the result of a chance event. This is indicated by the statistical significance, which will be shown in the tables presenting the results of the statistical analyses.

We also used multilevel modelling (MLM) to study the effect of some pupils attending the same schools on educational attainment in England. This is further explained in Section 2.1

## **Caveats**

While the pupil and school leaver data were the most complete data of their type available in the UK, they lacked some detail, which restricted the research.

First, the data did not include any information about the onset of a visual impairment or its severity. We can, therefore, not be sure that a visual impairment – or any other SEN – affected young people during the entire course of their education or only for some shorter time period. Furthermore, differences in the severity of a visual impairment (or other SEN) are likely to affect the young

persons' learning abilities relative to each other. Again, it was not possible to account for such variations systematically and with a fair degree of accuracy. In England and Wales, the type of support<sup>2</sup> offered to a pupil with SEN and recorded on the NPD may serve as a crude indicator of their support needs. However, local authorities allocate resources to school differently and it is possible for pupils in different local authorities to receive similar levels of support for their identical needs but through different support types (Florian, Rouse, Black-Hawkins & Jull, 2004; Farrell, 2001). Put differently, the same young person with SEN may receive SA+ or, indeed, receive a statement of SEN in one local authority, but only SA (or no support at all) in another local authority. These differences in local practices make comparisons of support types difficult and possibly unreliable.

Second, the NPD records all pupil attainment as assessed against the National Curriculum. Pupils whose achievements are substantially below the level expected for their age group are assessed against different performance criteria, the so-called P-scales. These describe interim performance stages in English, maths and personal and social development towards Level 1 and between Levels 1 and 2 (QCDA, n.d.). Although the pupils assessed against P-scales are included in the NPD, the scores they achieved on that scale are not. Attainment of these pupils is only recorded as "below the level" of the test/National Curriculum, without further differentiation. We include this measure in our analyses. However, unless pupils move above this level, it is not possible to observe any change in their performance between Key Stages.

### **1.3 Structure of the report**

The remainder of the report presents the results of the attainment analyses for each country in turn. Because of the greater number of pupils in the NPD England and the greater number of pupil and school variables available for analysis, the discussion is more extensive for England than for the other countries.

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<sup>2</sup> This includes special provisions within schools involving internal and/or external sources, special learning provisions, and a programmed, multi-agency approach of special support for pupils with a statement of SEN.

Chapter 2 introduces the NPD England data and covers descriptive statistics that provide a profile of blind and partially sighted pupils in England. In Chapter 3, we discuss the aggregate educational attainment of pupils in England, by their SEN status, and the factors affecting attainment. The fourth and final chapter on England presents the findings from the analysis of pupils' progression between KS3 and KS4.

Chapter 5 presents the findings from the analysis of the NPD for Wales and discusses the educational attainment of pupils with and without SEN in that country. The structure of this chapter broadly follows that for England, starting with an introduction to the NPD Wales data and a profile of blind and partially sighted pupils. This is followed by analysis of the factors related to educational attainment and individual progress.

Chapters 6 and 7 discuss the findings for Northern Ireland and Scotland respectively. Each chapter again begins with an overview of the data and, in the case of Scotland, also of the education system. The data sources are different to those used for England and Wales, covering school leavers rather than pupils at a certain stage in secondary education. The initial overview of the data is followed by a profile of school leavers and an analysis of factors relating to educational attainment. Individual progress analysis was not conducted for Northern Ireland or Scotland because the school leavers' data did not record attainment at an earlier age.

The concluding chapter of the report draws together the key findings of the analysis of the educational attainment of blind and partially sighted pupils across the four countries.

## 2 Blind and partially sighted pupils in England

This chapter and the following two chapters present the results of the analysis of the National Pupil Database (NPD) of England conducted to investigate the relationship between educational attainment and visual impairment. The NPD combines data from the Pupil Level Annual School Census (PLASC), first conducted in England in 2002, with data on current and prior attainment. The NPD contains repeated measures of school attainment for pupils in England. The measures of educational achievement focused on in this study are the end of Key Stage 3 (KS3) teacher assessments in the core subjects and the General Certificates of Secondary Education (GCSE) (or equivalent) obtained at the end of Key Stage 4 (KS4).

The National Curriculum in England consists of four Key Stages. At the end of each stage, pupils undergo teacher assessment or sit national tests to establish the level (ranging from 1 to 8) of their attainment. Formal qualifications are awarded at the end of KS4 in the form of GCSEs. The National Curriculum Key Stages, the age group they correspond to, the type of assessment at the end of the stage and the national target level expected are as follows:<sup>3</sup>

- **KS1 (5 – 7 years):** Teacher assessment, tasks and tests - Level 2
- **KS2 (7 - 11 years):** Teacher assessment and national tests in English, maths & science - Level 4
- **KS3 (11 – 14 years):** Teacher assessment in subjects including English, maths & science - Level 5
- **KS4 (14 – 16 years):** Entry level qualifications, key skills, GCSEs or vocational equivalent (NVQs) - 5 or more GCSEs grades A\*-C

### 2.1 Data content and analysis methods

Pupils with one or more SEN may receive different types of support. First, the teachers may make specific adjustments to their teaching to accommodate the pupils' needs. This measure, referred to as School Action (SA), is taken in the first instance and

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<sup>3</sup> Source: DirectGov (n.d.)

may be sufficient for less severe cases of SEN. Second, schools may receive outside help, for example from an educational psychologist, who develops a programme of learning support for the pupil, or advice from a specialist teacher for pupils with visual or hearing impairment. This measure is referred to as School Action Plus (SA+). If the pupil is not making progress at SA+, the Local Authority (LA) may issue a statement of SEN. In this statement, the LA commits itself to a detailed action plan to assist the pupil within the school, but also drawing on a range of external resources.

Although the NPD captures all pupils with SEN, it only records the type of SEN for pupils who receive SA+ or who have a statement of SEN. In other words, we are only able to identify visually impaired pupils who receive support under these measures. Throughout this report, any reference to SEN relates to pupils whose SEN type is known. It is possible that some pupils with SEN who receive SA rather than SA+ or a statement are visually impaired, but they cannot be identified from the data.

Besides pupils' socio-demographic characteristics, prior school attainment is another important factor that may help to explain current school attainment. The longitudinal aspect of the NPD is ideally suited for taking prior school attainment into account, as it contains the national curriculum assessment results of the previous Key Stages for each pupil<sup>4</sup>. Multivariate statistical analysis was used to estimate the effect of different SEN (compared with 'no SEN') on educational attainment, while controlling for other individual characteristics and past attainment. By controlling for other characteristics, the effect of visual impairment can be isolated.

The study also estimated the progression from KS3 to KS4, again comparing pupils with and without visual impairment, while taking account of their achievements at KS3. Thus, it was possible to observe the additional progress that pupils made between Key

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<sup>4</sup> This study did not follow the same pupils through their entire secondary schooling. We analysed data for two cohorts of pupils: a) those who had their KS3 assessments in 2007 and b) those who sat their KS4 exams in 2007. However, for each pupil in each cohort we also had the results from their assessments at the previous key stage (KS2 or KS3).

Stages. This is sometimes referred to as the “value added” of education. A value-added measure was derived using a methodology similar to that used by the Department for Children, Schools and Families (DCSF) for estimating the Contextual Value Added (CVA) measure. The measure was used to test for differences in learning progression between the groups of pupils.

The educational achievements of pupils are typically not only a reflection of an outcome of individual effort or ability, but are also influenced by the school environment. Teaching techniques or the presence of a large number of very bright or highly disadvantaged pupils at the same school or in the same classroom are examples of external factors that can affect a pupil’s KS assessment results. For the purposes of this study, data from the NPD were matched with data about schools from the Local Authority Statistical Information on Schools (LASIS). This enabled the comparison of the KS results of visually impaired and other pupils to take into account school-level factors, including the type of school, the school’s ethnic mix, and the proportion of children eligible for FSM (as an indicator of socio-economic disadvantage).

Systematically controlling for school-level influences requires an analysis method known as Multilevel Modelling (MLM), which is used for the analysis of hierarchical data. Hierarchical data consists of lower-level units (here: pupils) that cluster within higher-level units of data (here: schools). The technique takes into account that pupils who attend the same school or class may share certain characteristics (such as social background), and interact in a shared intellectual and educational environment.<sup>5</sup>

## **2.2 The incidence of special educational needs due to visual impairment**

The NPD identifies blind and partially sighted pupils whose visual impairment has been recognised and recorded as a primary or secondary SEN. Some pupils have additional SEN besides their visual impairment. We treated these pupils as a separate group of interest alongside pupils whose sole recorded SEN was their

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<sup>5</sup> In statistical terms, these pupils are not “independent” of each other and this lack of independence needs to be factored into any analysis of pupils who share classrooms or schools.

visual impairment. For the purpose of analysis, both groups of blind and partially sighted pupils have been compared with pupils without SEN and pupils with primary and/or secondary SEN other than visual impairment. For reasons of brevity we refer to these four groups as follows:

**No SEN:** Pupils without recorded special educational needs. This group includes pupils whose SEN are met by SA, but whose type of SEN is unknown.

**VI only:** Pupils with visual impairment recorded as their sole SEN.

**VI and additional SEN:** Pupils with visual impairment recorded as their primary or secondary SEN, along with another recorded SEN. This group includes pupils with multi-sensory impairment. Pupils with multi-sensory impairment have a combination of visual and hearing difficulties.

**Other SEN:** Pupils with one or two recorded special educational needs, neither of which is a visual or multi-sensory impairment.

Table 2.1 summarises the prevalence of visual impairment (hereafter: VI) among secondary school pupils in KS3 and KS4. In 2007, 91 per cent of KS3 and KS4 pupils had no recorded SEN. Fewer than one in a thousand pupils (434 or 0.07 per cent in KS3 and 443, or 0.07 per cent in KS4) were recorded as having VI as their primary and only SEN. A further 536 pupils (0.09 per cent) in KS3, and 484 pupils (0.08 per cent) in KS4 had VI recorded along with another difficulty or disability. The remaining nine per cent of pupils in each KS had one or more recorded SEN, but no VI.

**Table 2.1 Prevalence of VI in KS3 and KS4**

	KS3 Frequency (N)	KS3 %	KS4 Frequency (N)	KS 4 %
No SEN	526,175	90.79	548,469	91.05
VI only	434	0.07	443	0.07
VI & additional SEN	536	0.09	484	0.08
Other SEN	52,408	9.04	52,956	8.79
All	579,553	100	602,352	100

Base: all pupils in KS3 and all pupils in KS4

Source: NPD England 2007 (own calculations)

In the remainder of this chapter, we describe the main characteristics of pupils with different SEN status. The characteristics considered are limited by the information collected in PLASC and available in the NPD. We distinguished between individual pupil characteristics and characteristics of the school that the pupil attended.

### **2.3 Pupil characteristics**

In 2007, a little over half of all blind and partially sighted KS3 and KS4 pupils experienced an additional SEN (cp. Table 2.1). At KS3, the three main additional SEN recorded for pupils with VI and additional SEN were moderate learning difficulties (27 per cent), multi-sensory impairment (13 per cent) and specific learning difficulty (11 per cent; data not shown). In KS4, 26 per cent of pupils with VI and additional SEN also experienced moderate learning difficulties, 15 per cent had a physical disability and 11 per cent a specific learning difficulty<sup>6</sup>. The least common other SEN for this group of pupils at both Key Stages was autistic spectrum disorder.

The tables below (Table 2.2 to Table 2.6) summarise a range of characteristics of KS4 pupils with SEN status. The picture was broadly the same for KS3, hence only KS4 is covered here (for KS3 tables, see Appendix A).

The analysis found gender and ethnic differences in the prevalence of different types of SEN. Thus, just over half (54 per cent) of pupils with 'VI only' and 57 per cent of pupils with VI and additional SEN were boys. This compared with 49 per cent of pupils without SEN (Table 2.2).

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<sup>6</sup> Specific learning difficulties affect only one or two areas of learning, such as recognising letters or numbers, with other areas of learning unaffected. Examples include dyslexia, dyscalculia and dyspraxia (Teachernet, n.d.).

**Table 2.2 Gender by SEN status (row %)**

	Girl	Boy	Total	Base
No SEN	51	49	100	548,469
VI only	46	54	100	443
VI & additional SEN	43	57	100	484
Other SEN	33	67	100	52,956
All	49	51	100	602,352

Base: All pupils in KS4

Source: NPD England 2007 (own calculations)

Fourteen per cent of pupils with 'VI only' and 11 per cent of pupils with VI and additional SEN were of Asian ethnic origin, compared with seven per cent of pupils without SEN (Table 2.3). Possibly reflecting differences in the ethnic make-up of these groups, a higher proportion of blind and partially sighted pupils did not speak English as their first language (17 per cent of pupils with 'VI only'; 14 per cent of pupils with VI and additional SEN), when compared with pupils without SEN (10 per cent) (Table 2.4).

**Table 2.3 Ethnicity by SEN status (row %)**

	White	Black	Asian	Other	Total	Base
No SEN	86	4	7	4	100	531,357
VI only	81	2	14	3	100	432
VI & additional SEN	82	4	11	3	100	477
Other SEN	87	4	5	4	100	51,674
All	86	4	7	4	100	583,940

Base: All pupils in KS4

Source: NPD England 2007 (own calculations)

**Table 2.4 First language by SEN status (row %)**

	English	Not English	Total	Base
No SEN	90	10	100	543,103
VI only	83	17	100	443
VI & additional SEN	86	14	100	484
Other SEN	92	8	100	52,899
All	91	9	100	596,929

Base: All pupils in KS4

Source: NPD England 2007 (own calculations)

Several indicators suggested pupils with 'VI only', VI and additional

SEN and other SEN experienced a greater level or risk of social disadvantage than pupils without SEN. One example was free school meals (FSM), which are a means-tested benefit for pupils from low-income households. Seventeen per cent of VI-only pupils, 25 per cent of pupils with VI and additional SEN, and 26 per cent of pupils with other SEN were eligible for FSM. This compared with 11 per cent of pupils without SEN (Table 2.5).

**Table 2.5 FSM eligibility by SEN status (Cell %)**

	Eligible for FSM	Not eligible	Total	Base
No SEN	11	89	100	532,885
VI only	17	83	100	420
VI & additional SEN	25	75	100	457
Other SEN	26	74	100	51,048
All	13	87	100	584,810

Base: All pupils in KS4

Source: NPD England 2007 (own calculations)

Reflecting their greater eligibility for FSM, blind and partially sighted pupils were also more likely to live in deprived areas.<sup>7</sup> Twenty-six per cent of pupils with 'VI only', and 29 per cent of pupils with VI and additional SEN lived in some of England's most deprived areas, compared to 22 per cent of all pupils on the NPD database (Table 2.6).

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<sup>7</sup> The national pupil database includes a ranked Income Deprivation Affecting Children Index (IDACI) score for the Lower Super Output Area (LSOA) where the pupil lives. There are 32,482 LSOA in England, which have been ranked in order of most deprived to least deprived. For this analysis, the ranked IDACI scores were divided into quintiles (fifths). If SEN were unrelated to deprivation, one would expect the proportion of pupils with SEN living in each of the quintiles to be very similar to the proportion of all pupils in each quintile of area deprivation.

**Table 2.6 Area deprivation by SEN status (Row %)**

	Bottom	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	Top	Total	Base
No SEN	21	20	19	20	20	100	539,263
VI only	26	24	23	16	11	100	441
VI & additional SEN	29	25	20	15	12	100	483
Other SEN	33	24	17	14	11	100	52,634
All	22	20	19	19	19	100	592,821

Base: All pupils in KS4

Source: NPD England 2007 (own calculations)

A third indicator of the risk of deprivation is the proportion of the pupils in a school who are eligible for free school meals. Blind and partially sighted pupils were not only themselves more likely to be eligible for FSM, some were also more likely to attend schools with a high proportion of pupils eligible for FSM. The average proportion of pupils entitled to FSM in all schools in England attended by the 2007 KS4 pupils was 14 per cent (not shown). Pupils with 'VI only' also typically attended schools with 14 per cent of students eligible for FSM. But pupils with VI and additional SEN, and pupils with other SEN typically attended schools with, respectively, 21 per cent and 20 per cent of their pupils entitled to FSM.

## 2.4 Special educational provision

The NPD data relate to pupils in maintained (state) schools. Pupils with SEN can have their educational needs met through special educational provision in mainstream schools, or they can attend special schools. This section describes the special educational provision that blind and partially sighted pupils received at KS4 in 2007 and the different types of schools that they attended.

As noted earlier (Section 2.1), the NPD records the type of SEN for pupils who either receive SA+ or have a statement of SEN from their LA. In 2006/7, at KS4, over half of pupils with 'VI only' (55 per cent) and nearly three-quarters of the pupils with VI and additional SEN had a statement of SEN (74 per cent), as did about four in ten of all other pupils with SEN (44 per cent) (data not shown). A statement can be an indicator of greater support need

compared with SA+. For example, all pupils who attended special schools had statements of SEN. However, as noted earlier (Section 1.2) differences between local authorities' practices and funding mechanisms complicate comparisons of support types in the services provided for young people with very similar or, indeed, identical support needs, who live in different local authority areas. These variations complicate comparisons across different needs categories.

Only a minority of pupils with statements of SEN attended special schools. Fewer than half of statemented pupils with VI and additional SEN (45 per cent) and about two in five statemented pupils with other SEN (42 per cent) were educated in special schools (Table 2.7). Nine per cent of statemented pupils with 'VI only' were enrolled in special schools.

The majority of VI-only pupils went to community schools, regardless of their SEN support: 66 per cent of pupils receiving SA+ and 60 per cent of statemented pupils with 'VI only' attended a community school. The case was different for pupils with VI and additional SEN. Again over 60 per cent of pupils with VI and additional SEN who received SA+ support attended community schools (67 per cent). But this was true for only 34 per cent of statemented pupils with VI and additional SEN.

**Table 2.7 School types attended by SEN status and provision (row %)**

	Community	Voluntary aided/ controlled	Foundation	Special	Base
No SEN, No special provision	62	19	19	0	479,634
No SEN, SA	68	15	17	0	61,932
VI only, SA+	66	19	16		200
VI only, Statement	60	12	19	9	243
VI & additional SEN, SA+	67	13	19		126
VI & additional SEN, Statement	34	10	11	45	358
Other SEN, SA+	69	15	16	0	29,589
Other SEN, Statement	40	9	9	42	23,367
All	62	18	19	2	595,449

Base: All pupils in KS4

Source: NPD England 2007 (own calculations)

Further targeted support for pupils with SEN is available to pupils through so-called special classes or resourced provision<sup>8</sup> aimed at addressing specific SEN types. Pupils receiving resourced provision are mainly taught within mainstream classes, while pupils in special classes are taught mainly or wholly in separate classes providing for specific types of need. There were small differences in the proportions of pupils with different SEN status benefiting from this type of support (data not shown). Thus, six per cent of pupils with 'VI only' and eight per cent of pupils with VI and additional SEN were members of a special class (also referred to as a SEN unit). A further ten per cent of pupils with 'VI only' and

<sup>8</sup> Resourced provision refers to places at mainstream schools reserved for pupils with SEN that can be met with specialist facilities. Schools receive additional resources to provide these facilities. Places for resourced provision are allocated by local authorities and are generally reserved for pupils with statements but some pupils with SA+ may be included for resourced provision. It is unlikely for a pupil to attend both a SEN unit and have resourced provision, but the two are not mutually exclusive as a pupil could receive the two provisions for different types of SEN (DCSF, 2007a).

nine per cent of pupils with VI and additional SEN benefited from resourced provision at their schools. Among pupils with one or more SEN unrelated to sight, six per cent attended special classes and a further six per cent were allocated a place for resourced provision.

## **Teachers and school types**

Schools with a higher proportion of pupils with SEN had more teachers available per pupil than other schools. Put differently, their pupil-to-teacher ratios were lower. The average pupil-to-teacher ratio was lowest in schools attended by pupils with VI and additional SEN, where a teacher, on average, attended to about 13 pupils. This compared with about 15 pupils per teacher in schools attended by pupils with other SEN. In schools with VI-only pupils the ratio was 16 pupils per teacher. In schools attended by pupils without SEN the average ratio was nearly 17 pupils per teacher (data not shown).<sup>9</sup>

## **3 Educational attainment of blind and partially sighted pupils in England**

### **3.1 Measures of educational attainment**

The KS3 educational attainment measures in the NPD include the national standard levels achieved in English, mathematics (maths) and science. It also contains a total point score combining the results of the three measures into one overall score of KS3 achievement (see the Technical Notes). At KS4, a larger range of attainment measures is available in the NPD (see list below). Attainment for the four groups of pupils was reported using a

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<sup>9</sup> The pupil-to-teacher ratio is different to classroom size. The pupil-teacher ratio is calculated by dividing the number of pupils at the school with the number of qualified teachers at the school (always using full-time equivalents). In contrast, the average classroom size of a school would be calculated by dividing the number of pupils by the number of classes. While the two measures are related, the pupil-teacher ratio is generally lower as there are often a number of qualified teachers in non-teaching roles in the school (e.g. a head teacher).

number of the available measures, but only the KS4 indicator ‘five or more GCSEs graded A\* to C’ was used in more advanced statistical analysis of results. The list below outlines the different indicators used to measure KS4 attainment in England:

- **Total point score:**
  - the “new style” point score for GCSEs and equivalents
  - points are awarded for each qualification obtained, based on the type and grade
- **Capped total point score:**
  - the “new style” point score for GCSEs and equivalents based on the best 8 qualifications received
  - this is the measure used in the Government’s value added calculations
- **Highest examination category achieved**
  - the highest examination category achieved at GCSEs and equivalent ranges are:
    - Threshold 2 (5 or more A\*-C GCSEs or equivalent)<sup>10</sup>
    - Threshold 1 (5 or more A\*-G GCSEs or equivalent)
    - 1 or more Threshold 1 qualifications
    - Entry Level qualifications only (GCSEs below G)
    - No Passes
- **5 or more GCSEs A\* to C**
  - Indicates whether or not the pupil achieved Threshold 2
- **5 or more GCSEs A\* to C, including English and maths**
  - Indicates whether or not the pupil achieved Threshold 2 with English and maths as 2 of the 5 or more GCSEs graded A\* to C
- **5 or more GCSEs A\* to G**
  - Indicates whether the pupil achieved Threshold 1
- **5 or more GCSEs A\* to G, including English and maths**
  - Indicates whether the pupil achieved Threshold 1 with English and maths as 2 of the 5 or more GCSE graded A\* to G

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<sup>10</sup> Threshold 2 and Threshold 1 are also referred to as the Level 2 and Level 1 Thresholds respectively. However, to avoid confusion with the national curriculum levels outlined in Chapter 2, this report will avoid the use of “Level” in reference to GCSE Threshold achievements.

### 3.2 Results

Attainment at KS3 in 2006/7 varied markedly with SEN (Table 3.1). This applied both to point scores and achievement levels in the three main subjects. Pupils with 'VI only' performed less well than pupils without SEN. However, pupils with VI and additional SEN and pupils with other SEN reported the lowest achievement levels. For instance, pupils without SEN, on average, achieved a KS3 point score of 104, while pupils with 'VI only' achieved a mean score of 95 points. This compared with a mean score of 70 points for both pupils with VI and additional SEN and pupils with other SEN.

The performance gap between pupils with or without other SEN was more obvious with respect to achieving Key Stage Levels 4 or 5 in English, maths and science. Ninety-one per cent to 93 per cent of pupils without SEN and 80 per cent to 87 per cent of pupils with 'VI only' achieved Level 4 or above (the national target at KS2) in any one of the three subjects. This compared with 39 per cent to 50 per cent of pupils with VI and additional SEN and 41 per cent to 57 per cent of pupils with other SEN.

Similarly, 77 per cent to 80 per cent of pupils without SEN and 63 per cent to 65 per cent of pupils with 'VI only' achieved Level 5 or above in any one of the core subjects. But only 22 per cent to 28 per cent of pupils with VI and additional SEN and 25 per cent to 27 per cent of pupils with other SEN achieved at least this level.

**Table 3.1 KS3 results by SEN status (cell %)**

	Mean Total point score	Level 5 English (%)	Level 5 Math (%)	Level 5 Science (%)	Level 4 English (%)	Level 4 Math (%)	Level 4 Science (%)	Base
No SEN	104	79	80	77	91	93	93	526,175
VI only	95	63	65	63	80	84	87	434
VI & additional SEN	70	25	27	26	39	43	50	536
Other SEN	70	22	28	28	41	51	57	52,408
All	101	74	76	73	87	89	90	579,553

Base: All pupils in KS3

Source: NPD England 2007 (own calculations)

SEN status also appeared to affect educational attainment at KS4 (Table 3.2). The average capped GCSE point score in 2006/7 was slightly lower for pupils with 'VI only' (292 points) than for sighted pupils without SEN (311 points). It was lower again for pupils with VI and additional SEN and pupils with other SEN, whose average capped scores were 190 points and 169 points respectively.

A similar pattern emerged with respect to the GCSE Thresholds (Table 3.2). Threshold 2 (5 or more A\*-C GCSE or equivalent) was achieved by 64 per cent of pupils without SEN and by 54 per cent of pupils with 'VI only'. In contrast, only 15 per cent of pupils with VI and additional SEN and 13 per cent of pupils with other SEN achieved Threshold 2.

Nearly half (49 per cent) of pupils without SEN and nearly two fifths (37 per cent) of pupils with 'VI only' achieved 5 or more GCSEs graded A\* to C that included English and maths. But only eight per cent of pupils with VI and additional SEN and seven per cent of pupils with other SEN achieved these grades.

**Table 3.2 GCSE results by SEN status (cell %)**

	Mean Capped point score	Threshold 2: 5 or more GCSE A*-C (%)	Threshold 2: Incl. English & Math (%)	Threshold 1: 5 or more GCSE A*-G (%)	Threshold 1: Incl. English & Maths (%)	Base
No SEN	311	64	49	94	92	548,469
VI only	292	54	37	87	86	443
VI & additional SEN	190	15	8	52	48	484
Other SEN	169	13	7	54	49	52,956
All	300	59	45	90	88	602,352

Base: All pupils in KS4

Source: NPD England 2007 (own calculations)

Finally, about half of pupils with VI and additional SEN (52 per cent) and about half of pupils with other SEN (54 per cent) achieved the lower Threshold 1, that is, five or more GCSE passes at grades A\* to G. This compared with 94 per cent of pupils without SEN and 87 per cent of pupils with 'VI only' achieving this Threshold. The respective statistics were also slightly lower for Threshold 1 including English and maths, although the decrease was a little larger for pupils with VI and additional SEN and for pupils with other SEN than for other pupils.

### **GCSE attainment in different school settings**

Attainment levels are known to vary with the type of school that a pupil attends. Pupils without SEN and with 'VI only' achieved better results in voluntary aided/controlled schools, and in foundation schools, than in community schools (Table 3.3). Between almost a fifth and a quarter of pupils with VI and additional SEN in community, voluntary or foundation schools achieved Threshold 2. Only one per cent of pupils with VI and additional SEN in special schools did so. Some of these performance differences may reflect differences in the severity of SEN, which we cannot identify using the available data.

**Table 3.3 Proportion of pupils achieved 5 or more GCSE A\*-C by SEN status and type of school (cell %)**

	Community	Voluntary aided/ controlled	Foundation	Special	Base
No SEN	60	71	68	0.9	548,469
VI only	53	60	67	*	443
VI & additional SEN	21	25	19	1.2	484
Other SEN	15	21	19	0.5	52,956
All	57	67	65	0.5	602,352

Base: All pupils in KS4

Source: NPD England 2007 (own calculations)

Note: \* Figure not displayed due to small cell size.

### 3.3 Factors relating to overall educational attainment

In order to understand better the effect that SEN status and visual impairment have on pupils' educational attainment, we conducted a series of regression analyses. Regression analysis allows us not only to observe the effect of SEN or VI status, but also to measure the importance of other pupil characteristics in determining educational attainment (for detailed results tables, see Appendix B). The regression analyses measured the effect of the following variables:

- SEN status
- Gender
- Ethnicity
- First language
- FSM eligibility
- Prior attainment
- Level of deprivation of the area in which pupils were living.

In the following tables, we indicate the statistical significance of a variable's effect on attainment. Statistical significance suggests that an observed effect is 'real' rather than the result of a chance event.

## Factors affecting KS3 results

To estimate the effect of pupil and area characteristics on KS3 attainment, we chose the total point score as the outcome measure. Linear regression analysis was used to estimate the characteristics' contributions to the attainment score. Table 3.4 summarises the main findings of the analysis, indicating the direction and the statistical significance of the effects (for full statistical results, see the Appendix).

Two results are shown, based on slightly different specifications of the regression model. The first model (Model 3.1) was based on the set of variables identified earlier but excluding the prior attainment (KS2) indicator. The second regression model (Model 3.2) included all of the above indicators and also the KS2 point score. By including KS2 results we take into account any differences in the pupils' attainment that existed prior to entering KS3.

Both models produced similar results. All else equal, being of non-white ethnic background, having a first language other than English, and living in an area other than the most deprived fifth of areas all increased KS3 point scores.

The ethnicity and language-related findings of this analysis may initially seem counterintuitive. However, it is worth bearing in mind that the effect emerges after controlling for other factors such as area deprivation, FSM eligibility and SEN status. The finding is in line with previous research that highlighted the better performance of some minority ethnic pupils (e.g. Middleton, Cebulla, Perren and De-Beaman, 2005) and their greater progress during secondary school compared with white pupils (Wilson, Burgess and Briggs, 2005).

Model 3.2 also shows that KS3 point scores were higher for those with already higher scores at KS2. Eligibility for FSM and male gender reduced KS3 point scores, as did the presence of any SEN in model 3.1. However, once KS2 point scores were taken into account, the KS3 point scores of pupils with 'VI only' no longer differed from those of pupils without SEN. The KS3 point score of pupils with VI and additional SEN or of pupils with other SEN, however, remained lower.

This indicates that pupils with 'VI only' performed less well than pupils without SEN at KS3 because they were already performing less well at KS2. They did not fall behind further whereas the other groups did.

**Table 3.4 Multiple linear regression: KS3 total point score**

	<b>Model 3.1</b> Coefficient direction	<b>Model 3.1</b> Statistical Significance	<b>Model 3.2</b> Coefficient direction	<b>Model 3.2</b> Statistical Significance
SEN status (ref: No SEN)				
VI only	-	Yes	-	No
VI & additional SEN	-	Yes	-	Yes
Other SEN	-	Yes	-	Yes
Gender - Boy (ref: Girl)	-	Yes	-	Yes
Ethnicity – Non-white (ref: White)	+	Yes	+	Yes
First language – Other (ref: English)	+	Yes	+	Yes
Eligible for FSM (ref: No)	-	Yes	-	Yes
Area deprivation quintile (ref: most deprived)				
2 <sup>nd</sup> quintile	+	Yes	+	Yes
3 <sup>rd</sup> quintile	+	Yes	+	Yes
4 <sup>th</sup> quintile	+	Yes	+	Yes
5 <sup>th</sup> quintile	+	Yes	+	Yes
KS2 total point score	n/a	n/a	+	Yes

Base: All pupils in KS3

Source: NPD England 2007 (own calculations)

Note: Statistical significance at 95 per cent level.

### **Factors affecting KS4 results**

The principal measure of KS4 attainment in England is the attainment of five or more GCSEs graded A\* to C. This is the threshold commonly used to measure achievement at this level, and the measure published in government statistics. In order to estimate the effect of pupil and area characteristics on GCSE results, pupils who did achieve this level of attainment were

compared with pupils who did not. The explanatory variables in this analysis were the same as those included in the KS3 analysis.

In this instance, because a binary variable (whether someone had or had not achieved the grades) served as the outcome measure, logistic regression rather than linear regression was used to estimate statistical effects. The logistic regression estimated whether the odds of a pupil with SEN, including visual impairment, achieving the five or more GCSE grades were the same as, or lower or greater than, those of a pupil without SEN.

We again summarise the findings in Table 3.5, with full results reported in the Appendix. Once again, the first model excluded prior KS3 attainment as a variable explaining current KS4 attainment. The second model included it.

The results of this analysis were strikingly similar to those of the earlier KS3 attainment analysis. Ethnicity (being non-white), first language (not English) and area deprivation (not most deprived) again had positive effects on pupil attainment, while SEN status had a negative effect. When KS3 results were taken into account, the GCSE grade attainment of pupils with 'VI only' was no longer different from that of pupils without SEN.

**Table 3.5 Logistic regression: 5 or more GCSEs A\*-C**

	<b>Model 3.3</b> Coefficient direction	<b>Model 3.3</b> Statistical Significance	<b>Model 3.4</b> Coefficient direction	<b>Model 3.4</b> Statistical Significance
SEN status (ref: No SEN)				
VI only	-	Yes	+	No
VI & additional SEN	-	Yes	-	Yes
Other SEN	-	Yes	-	Yes
Gender - Boy (ref: Girl)	-	Yes	-	Yes
Ethnicity – Non-white (ref: White)	+	Yes	+	Yes
First language – Other (ref: English)	+	Yes	+	Yes
Eligible for FSM (ref: No)	-	Yes	-	Yes
Area deprivation quintile (ref: most deprived)				
2 <sup>nd</sup> quintile	+	Yes	-	Yes
3 <sup>rd</sup> quintile	+	Yes	+	Yes
4 <sup>th</sup> quintile	+	Yes	+	Yes
5 <sup>th</sup> quintile	+	Yes	+	Yes
KS3 total point score	n/a	n/a	+	Yes

Base: All pupils in KS4

Source: NPD England 2007 (own calculations)

Note: Statistical significance at 95 per cent level.

### **Additional analysis: Statement status**

The analysis underlying Model 3.3 was repeated for pupils with SEN only, that is, excluding pupils without SEN. The objective of this additional analysis was to ascertain whether pupils with a statement of SEN recorded different school performance results than other pupils. The analysis revealed that this was indeed the case, but that effects varied by SEN type.

Having a statement of SEN, as opposed to receiving SA+, reduced the odds of achieving Threshold 2 for pupils with other SEN. This was not the case for blind and partially sighted pupils. Among blind and partially sighted pupils, it was not the Statement status that affected educational achievement, but the presence or absence of 'additional SEN'. The odds of achieving Threshold 2 were lower for pupils with VI and additional SEN than for pupils

with 'VI only'. This was unaffected by pupils having a Statement of SEN or not (see Appendix B for results table).

### **Taking school-level factors into account: the MLM analysis**

The analyses reported above controlled for individual pupil characteristics. However, we know that pupils are clustered within schools, sharing personal similarities and the school environment. Clustering and similarities may influence pupils' performance. MLM (Multilevel Modelling) takes these influences into account, not only by controlling for school-level characteristics, but also by separately estimating the effect of variations in attainment levels of pupils attending the same school.

We estimated school-level effects using MLM for KS4 attainment, again selecting five or more GCSE grades A\* to C as the attainment indicator. In addition to the pupil-level information, the multi-level model included three school level characteristics:

- the type of school;
- the pupil-teacher ratio, and
- the proportion of pupils at the school in receipt of free school meals.

Again, two analyses were conducted, one excluding and the other including information about prior attainment. Because of the complexity of the analysis, MLM is very sensitive to the type of data that are used. For this reason, it was not possible to use KS3 point scores as the indicator of prior attainment.<sup>11</sup> However, MLM permits the use of categorical variables as controls. A four-point categorical variable was, hence, derived from the total point scores. The four categories were: (i) cases with missing information (fewer than 51 points), (ii) no test-level result awarded (51 points), (iii) failing to achieve the national target in all three subjects (52 to 98 points), (iv) achieving or exceeding the national KS3 standard in English, mathematics and science (99 or more points). A more detailed description of our method to derive the categories is presented in the Technical Notes.

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<sup>11</sup> The scores did not meet the condition of complete continuity that MLM requires; they were, in fact, in irregular intervals.

The MLM showed that there was significant variation between schools, making the MLM an improvement on the single-level model.<sup>12</sup> The MLM confirmed the findings of the previous regression analysis, for the variables shared in both estimations. Not being of white ethnic background, not speaking English as the first language, and not living in one of the most deprived areas of England positively affected KS4 attainment (Table 3.6). Compared with the 'no SEN' reference category, pupils with 'VI only' had lower odds of achieving five or more A\*-C GCSEs. However, after adding prior attainment at KS3 to the model, there was no longer any difference between the level of KS4 attainment of pupils with 'VI only' and pupils without SEN.

Pupils with VI and additional SEN and pupils with other SEN also had lower odds of achieving this attainment threshold when compared with pupils without SEN. But in their case, this attainment gap remained even after prior attainment at KS3 was taken into account. Controlling for school type and other individual characteristics, the likelihood of achieving five or more A\*-C graded GCSEs for pupils with VI and additional SEN were similar to those of pupils with other SEN.

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<sup>12</sup> The MLM was also run as a 3-level model with Local Authority entered as the highest level. This model confirmed that there was also significant variation between local authorities. It was not possible in this study to explore the reasons for the variation at local authority level.

**Table 3.6 Logistic multilevel modelling: 5 or more GCSEs A\*-C**

	<b>Model 3.5</b> Coefficient direction	<b>Model 3.5</b> Statistical Significance	<b>Model 3.6</b> Coefficient direction	<b>Model 3.6</b> Statistical Significance
SEN status (ref: No SEN)				
VI only	-	Yes	+	No
VI & additional SEN	-	Yes	-	Yes
Other SEN	-	Yes	-	Yes
Gender - Boy (ref: Girl)	-	Yes	-	Yes
Ethnicity – Non-white (ref: White)	+	Yes	+	Yes
First language – Other (ref: English)	+	Yes	+	Yes
Eligible for FSM (ref: No)	-	Yes	-	Yes
Area deprivation quintile (ref: most deprived)				
2 <sup>nd</sup> quintile	+	Yes	+	Yes
3 <sup>rd</sup> quintile	+	Yes	+	Yes
4 <sup>th</sup> quintile	+	Yes	+	Yes
5 <sup>th</sup> quintile	+	Yes	+	Yes
KS3 results (ref: Level 5 or above EMS)				
Incomplete	n/a	n/a	-	Yes
Below level/ No award	n/a	n/a	-	Yes
Not at expected level	n/a	n/a	-	Yes
<b>School Factors</b>				
School type (ref: Community)				
Voluntary aided or controlled	+	Yes	+	Yes
Foundation	+	Yes	+	Yes
Special	-	Yes	-	Yes

Base: All pupils in KS4

Source: NPD England 2007 (own calculations)

Note: Statistical significance at 95 per cent level.

The MLM also revealed that, after controlling for pupil-level characteristics, the type of school that pupils attended retained a strong independent effect on the pupils' attainment. Compared to community schools (the most common school type in England), pupils who attended voluntary aided or controlled, or foundation schools performed better, whereas pupils in special schools

performed less well. The remaining school-level statistics, that is, the pupil-to-teacher ratio and the proportion of pupils receiving FSM, did not meaningfully add to our understanding of attainment levels and, hence, they were removed from the final analysis. Whether the pupil was part of a SEN unit (special class) did also not have any effect on achievement, and this variable was also removed.

To conclude, the multilevel analysis suggested that the type of school that young people attended could have had a positive or negative effect on their educational attainment. However, we must be careful not to overstate the evidence. It must be borne in mind that the model was only able to control for small number of pupil and school variables. There were likely to be additional factors and influences that were not captured in the statistical models. A notable example was the severity of special needs and type of support detailed in the statements. The model can only account for the presence or absence of a statement and, implicitly, assumes that all statements were equivalent. However, this was unlikely to be the case in reality.

## 4 Individual progress between KS3 and KS4 in England

### 4.1 Progress from Key Stage 3 to Key Stage 4

This chapter presents the results of the analysis of SEN and, in particular VI, affecting progression from KS3 to KS4/GCSE. Before turning to the analysis of progression, it is informative to look at the starting point for this analysis, i.e. the pupils' attainment at KS3.<sup>13</sup> Sixty-four per cent of all pupils had achieved level 5 or above in English, maths and science at KS3 in 2007 (Table 4.1). However, this was only the case for 52 per cent of pupils with 'VI only'. Even fewer pupils with VI and additional SEN (15 per cent) and pupils with other SEN (16 per cent) achieved this level of attainment. Almost a third of pupils with VI and additional SEN (30 per cent), and 15 per cent of pupils with other SEN, were not awarded a national curriculum level at KS3. Almost all of the pupils who failed to record a KS3 result also subsequently failed to achieve the lower Threshold 1 (5 or more GCSE at A\*-G grades) at KS4: 97 per cent of pupils with VI and additional SEN and 92 per cent of pupils with other SEN without KS3 results also recorded no minimum standard results at KS4 (data not shown).<sup>14</sup>

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<sup>13</sup> The categories of KS3 attainment used here are the same as those outlined earlier regarding the variable used in the MLM, but pupils with missing information were excluded from the analysis.

<sup>14</sup> This may include pupils with severe SEN who were assessed on P-scales below the national curriculum levels throughout their compulsory schooling. P-scale results are not recorded on the NPD.

**Table 4.1 Prior achievement (KS3) by SEN status**

	Total point score	Below level/ No award	Not at target level	Level 5 or above (EMS)	Base
No SEN	103	0	32	68	523,361
VI only	93	2	46	52	413
VI & additional SEN	68	30	55	15	438
Other SEN	70	15	69	16	44,677
All	100	1	35	64	568,889

Base: All pupils in KS4

Source: NPD England 2007 (own calculations)

#### **4.2 Individual progress: the value added measure**

In order to explore individual progress between KS3 and KS4, KS4 point scores were estimated on the basis of KS3 point scores, using regression analysis. The regression also controlled for pupil characteristics. Progression was then measured by comparing predicted to actual KS4 point scores (for details of the methodology, see the Technical Notes). This method is contested because it assumes a degree of comparability of KS3 and KS4 test scores that, in fact, does not exist. It is nevertheless widely used in educational research.

The results of this analysis confirmed that, on average and after taking into account their gender, ethnicity and first language, free school meals status and the deprivation rank of their area, progression differed across the SEN status groups of pupils (Table 4.2). Pupils without SEN or with 'VI only' performed as predicted or slightly better than predicted. The GCSE attainment of pupils with VI and additional SEN, on the other hand, was lower than predicted, averaging 26 points less. This was approximately equivalent to a drop by four grades in one GCSE subject (e.g. from grade A\* to grade D) or a one-grade drop (e.g. from grade A to grade B) in four GCSE subjects.

**Table 4.2 KS3 to KS4 progression – value added regression**

	Mean Individual progress KS3 to KS4	Base
No SEN	3.43	521,415
VI only	7.07	427
VI & additional SEN	-25.73	376
Other SEN	-39.69	44,844
All	0	567,062

Base: All pupils in KS4

Source: NPD England 2007 (own calculations)

Note: Progression measured as the difference between actual KS4 scores and KS4 scores predicted on the basis of KS3 scores.

Pupil characteristics controlled for.

Although progressing less than pupils without SEN or VI only, pupils with VI and additional SEN performed better – or less poorly – than pupils with other SEN, whose performance declined most between KS3 and KS4. However, for reasons already mentioned, we must caution against reading too much into this result: KS3 and KS4 scores are estimated in different ways and have different scales. This limits their comparability. It is conceivable that the numerical difference in the actual and predicted scores for these two groups of pupils with SEN was the result of variations in score estimation methods.

The same may hold for the differences in the progression score of, on the one hand, pupils without SEN and pupils with ‘VI only’ and, on the other hand, pupils with VI and additional SEN and pupils with other SEN. However, this is less likely to be the case because of the greater gap between the scores. The differences in predicted and actual scores also indicated different directions of change. They were positive and indicated progression for pupils without SEN or ‘VI only’. But they were negative and indicated regression in the case of pupils with VI and additional SEN and pupils with other SEN.

### **4.3 Country Summary: England**

This analysis of NPD data for England showed that the attainment levels of blind and partially sighted pupils at KS3 and KS4 in

2006/7 were below those of pupils without specific recorded special educational needs. This applied to pupils whose visual impairment was their sole SEN as well as to pupils who had additional SEN. These findings hold true even after controlling for variations in deprivation, gender and ethnicity of pupils. School types also affected the performance of pupils, but did not alter the principal effects of pupil characteristics and, in particular, SEN status on attainment levels.

Once attainment at the respective previous KS assessments was taken into account, the attainment levels of pupils with visual impairment as their only SEN and of pupils without SEN were the same. This was the case for both Key Stages' results. This leads us to conclude that the attainment gap between pupils with 'VI only' and pupils without SEN, although small, was probably already present before the pupils began secondary school. It then remained largely unchanged in later years.

However, for blind and partially sighted pupils with an additional SEN the findings from the analysis were very different. Pupils with VI and additional SEN performed worse at KS3 and at KS4 than their 'no SEN' counterparts. This effect was sustained even after controlling for prior attainment. In terms of individual progress, this group did worse at GCSE than would have been predicted based on their KS3 results while controlling for other pupil characteristics. Only pupils with other SEN fell behind further educationally between KS3 and KS4. Nearly a third of pupils with VI and additional SEN – the largest proportion of any pupil group – were below the level or were not awarded a level at KS3. Almost all of them subsequently failed to meet the lower benchmark of attainment at KS4 of five or more GCSE passes at grades G or above (Threshold 1).

## 5 Blind and partially sighted pupils in Wales

The Welsh National Pupil Database (NPD) was analysed to investigate the educational attainment of blind and partially sighted pupils in Wales. The NPD Wales began in 2004 and combines administrative data about all pupils in maintained schools in Wales, reported by schools annually to the Welsh Assembly Government. The two main sources of information in the NPD are the Pupil Level Annual School Census (PLASC) and the National Data Collection (NDC). PLASC collects data on pupil characteristics, curriculum and post-16 education, while the NDC records teacher assessment results at Key Stages 1, 2 and 3 (WAG, n.d.a)<sup>15</sup>. The data provided for analysis of KS4 attainment included the total point score<sup>16</sup>, and pupils' attainment of GCSE Threshold 2 (5 or more GCSE graded A\* to C) and Threshold 1 (5 or more GCSE graded A\* to G).

The NPD Wales records up to two SEN types for each pupil with SEN, and indicates whether the pupils' special educational needs are met through SA, SA+ or a statement.<sup>17</sup> This is different from the NPD England, which only records the type(s) of SEN for pupils with SA+ or with a statement. In England, therefore, pupils classified as without SEN might, in fact, have included some blind and partially sighted young people who received School Action (but not SA+) support. These pupils were separately identified in the Welsh NPD and allocated to their respective SEN group. This should be borne in mind when comparing statistics pertaining to Wales and England.

Three years of data (2006 to 2008) from the NPD Wales were combined in order to include a sufficient number of blind and partially sighted pupils. However, as a result, prior attainment

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<sup>15</sup> See Chapter 2 for an outline of the Key Stages and the end of KS assessments.

<sup>16</sup> The KS4 total point scores in the Welsh data are based on the "Old system" (see the Technical Notes section). As a result, the scores are not comparable with those reported in chapters 3 and 4 for England.

<sup>17</sup> A small number of pupils (0.1%) were coded as being in the process of undergoing a Statutory Assessment. These pupils were assigned to the group of pupils with SA+ support.

information pertaining to KS2 was available only for two-thirds of the pupils in the KS3 attainment analysis. Pupils who had their KS3 assessments in 2006 had their KS2 assessments in 2003, that is, before NPD records began. Analyses that incorporated prior attainment at KS2 were restricted to this smaller group of pupils.

The same definition of SEN status was adopted in this analysis of Welsh data as was used in the analysis of the NPD England. Blind and partially sighted pupils were split into two main groups: pupils with visual impairment as their sole SEN ('VI only') and pupils with visual impairment and another SEN ('VI and additional SEN'). These pupils were compared with pupils without SEN ('No SEN') and pupils with one or more other SEN ('Other SEN'), not including VI or MSI.<sup>18</sup>

Pupils with visual impairment represented a comparatively small group of pupils in Wales. Across the three years, 126 pupils in KS3 and 136 pupils in KS4 had 'VI only', each equivalent to 0.1 per cent of pupils in Wales. A further 113 pupils in KS3 and 94 pupils in KS4 had VI and additional SEN, each again representing 0.1 per cent of the pupil population (Table 5.1).

**Table 5.1 Prevalence of VI in Wales**

	KS3 Frequency (N)	KS3 %	KS4 Frequency (N)	KS4 %
No SEN	88,189	79.65	94,633	83.01
VI only	126	0.11	136	0.12
VI & additional SEN	113	0.10	94	0.08
Other SEN	22,202	20.05	18,995	16.66
All	110,630	100	113,858	100

Base: All KS4 pupils

Source: NPD Wales (2006-2008) (own calculations)

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<sup>18</sup> Multi-sensory impairment (MSI) is a combination of visual and hearing difficulties.

## 5.1 A profile of blind and partially sighted pupils in Wales<sup>19</sup>

As in England, boys were more likely to have SEN than girls. Whereas boys constituted 51 per cent of all pupils at KS4 in Wales between 2006 and 2008, they made up 57 per cent of pupils with 'VI only', 62 per cent of pupils with VI and additional SEN, and 65 per cent of pupils with other SEN (Table 5.2).

**Table 5.2 Gender by SEN status (row %)**

	Girl	Boy	Total	Base
No SEN	52	48	100	94,633
VI only	43	57	100	136
VI & additional SEN	38	62	100	94
Other SEN	35	65	100	18,995
All	49	51	100	113,858

Base: All KS4 pupils

Source: NPD Wales (2006-2008) (own calculations)

The ethnic composition of pupils in Wales was fairly homogenous and more homogenous than in England (Table 5.3; cp. Table 2.3 for England). Ninety-seven per cent of pupils were of white ethnic background. This was true for all pupils regardless of their SEN status, with the exception of pupils with 'VI only' who were all of white background.

**Table 5.3 Ethnicity by SEN status (row %)**

	White	Black	Asian	Other	Total	Base
No SEN	97	1	0	2	100	92,697
VI only	100				100	135
VI & additional SEN	97	2		1	100	91
Other SEN	97	1	0	2	100	18,523
All	97	1	0	2	100	111,446

Base: All KS4 pupils

Source: NPD Wales (2006-2008) (own calculations)

<sup>19</sup> This section focuses on pupils at KS4. For tables of personal characteristics of the KS3 pupils, see Appendix A.

As in England, the presence of SEN was associated with material deprivation. Whereas 14 per cent of all pupils in Wales were eligible for FSM (a benefit available to school children from low-income families), this rose to 25 per cent of pupils with other SEN (Table 5.4). About 15 per cent of pupils with 'VI only' or VI and additional SEN were entitled to FSM.

**Table 5.4 Free school meals eligibility by SEN status (row %)**

	Eligible for FSM	Not eligible	Total	Base
No SEN	11	89	100	94,633
VI only	15	85	100	136
VI & additional SEN	15	85	100	94
Other SEN	25	75	100	18,995
All	14	86	100	113,858

Base: All KS4 pupils

Source: NPD Wales (2006-2008) (own calculations)

Pupils with different types or combinations of SEN received different types and levels of support. Thus, 44 per cent of pupils with 'VI only' and 56 per cent of pupils with VI and additional SEN, but only 24 per cent of pupils with other SEN had a statement of SEN (Table 5.5). The statement can indicate the highest level of need and support (although as noted in Section 1.2, policies and funding mechanisms vary between local authorities making the support type an imperfect indicator of level of need). Half of all pupils with other SEN had their support needs met through SA (the most basic support) compared with 32 per cent of pupils with 'VI only' and 21 per cent of pupils with VI and additional SEN. Around a quarter of pupils with SEN had their needs met through SA+.

**Table 5.5 SEN provision received, by SEN status (row %)**

	No special provision	School action	School action plus	Statement of SEN	Total	Base
No SEN	100	0	0	0	100	94,633
VI only		32	24	44	100	136
VI & additional SEN		21	22	56	100	94
Other SEN	0	50	26	24	100	18,995
All	83	8	4	4	100	113,858

Base: All pupils in KS4

Source: NPD Wales (2006-2008) (own calculations)

The school types recorded in the NPD Wales distinguished between mainstream secondary and special schools. Whereas all KS4 pupils without SEN and all pupils with 'VI only' in Wales attended mainstream secondary school, only around three-quarters (77 per cent) of pupils with VI and additional SEN did. The remainder attended special schools, as did six per cent of pupils with other SEN (Table 5.6).

**Table 5.6 Types of schools attended by pupils, by SEN status (row %)**

	Secondary	Special	Total	Base
No SEN	100		100	94,626
VI only	100		100	136
VI & additional SEN	77	23	100	94
Other SEN	94	6	100	18,975
All	99	1	100	113,831

Base: All pupils in KS4

Source: NPD Wales (2006-2008) (own calculations)

## 5.2 Educational attainment of blind and partially sighted pupils in Wales

The KS3 educational attainment measures in the NPD Wales include the national standard levels in the core subjects (English, maths, science<sup>20</sup>). Using the levels awarded in each of the core

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<sup>20</sup> Welsh is also a compulsory core subject for all pupils in Wales. Pupils either study Welsh First Language or Welsh Second Language from KS1 to KS4 (WAG, n.d.b). However, the data made available to this study only contained information for pupils who had their KS3 assessments in Welsh First Language (16% of the pupils in KS3). Information about pupils who had been assessed in Welsh Second language was only available from 2006 onwards (i.e. for one-third of the pupils in our data). For this reason, Welsh Language results were disregarded in the analysis. Only English, maths and science results were taken into account.

subjects at KS3, a point score measure was calculated using the DCSF points allocation system<sup>21</sup> (DCSF, 2005; DCSF, n.d.).

The analyses of core subject attainment and of point scores showed that educational attainment in Wales varied markedly by SEN status. Around 80 per cent of pupils without SEN achieved Level 5 or above in English, maths or science, - the level expected at KS3. The average point score for the three core subjects was 106 points (Table 5.7). In contrast, the proportion of VI-only pupils achieving Level 5 in the three subjects ranged from 55 per cent in English to 66 per cent in science, with an average point score of 95 points.

Attainment levels were considerably lower among pupils with VI and additional SEN and pupils with other SEN. Twenty-six per cent of pupils with VI and additional SEN achieved Level 5 in English, 25 per cent achieved this level in maths, and 34 per cent achieved it in science. The average total score for this group of pupils was 77 points. Similarly, 25 per cent of pupils with other SEN achieved Level 5 in English, 31 per cent in maths, and 35 per cent in science. The average total score for pupils with other SEN was 81 points.

**Table 5.7 KS3 results by SEN status (cell %)**

	Mean Total point score	Level 5 English (%)	Level 5 Math (%)	Level 5 Science (%)	Base
No SEN	106	80	82	82	88,189
VI only	95	55	62	66	126
VI & additional SEN	77	26	25	34	113
Other SEN	81	25	31	35	22,202
All	101	69	72	73	110,721

Base: All pupils in KS3

Source: NPD Wales (2006-2008) (own calculations)

Attainment levels continued to differ by SEN status at KS4 (Table 5.8). Pupils with 'VI only' recorded average total point scores (37 points) somewhat below those of their 'no-SEN' counterparts (46

<sup>21</sup> See the Technical Notes section.

points). However, both pupils with VI and additional SEN (16 points) and pupils with other SEN (18 points) recorded average total point scores that were less than half of those attained by pupils without SEN or with 'VI only'.

A similar pattern emerged with respect to the GCSE Thresholds (Table 5.8). While the majority of pupils without SEN (62 per cent) and nearly half of pupils with 'VI only' (46 per cent) obtained 5 or more GCSEs graded A\* to C, only 14 per cent of pupils with VI and additional SEN or pupils with other SEN (also 14 per cent) attained this threshold. Approximately nine in ten pupils without SEN (93 per cent) and pupils with 'VI only' (89 per cent) attained Threshold 1 with 5 or more GCSEs graded A\* to G, while approximately half of pupils with VI and additional SEN (47 per cent) and pupils with other SEN (54 per cent) did so.

**Table 5.8 KS4 results by SEN status (cell %)**

	Mean Total point score	Threshold 2: 5 or more A*-C GCSEs (%)	Threshold 1: 5 or more A*-G GCSEs (%)	Base
No SEN	46	62	93	94,633
VI only	37	46	89	136
VI & additional SEN	16	14	47	94
Other SEN	18	14	54	18,995
All	41	54	86	113,858

Base: All pupils in KS4

Source: NPD Wales (2006-2008) (own calculations)

### 5.3 Factors relating to overall educational attainment in Wales

Regression analysis was used to estimate the effect of SEN status on educational attainment, while controlling for other factors known to affect educational attainment. The analyses measured the effect of the following variables:

- SEN status
- Gender
- Ethnicity
- FSM eligibility
- School type

- Prior attainment.

### **Factors affecting KS3 results**

The outcome measure for KS3 attainment was the total point score. Two regression models are presented here: the first model (Model 5.1) includes all variables except prior attainment, while the second model also incorporates KS2 results (Model 5.2). Because KS2 results were only available for pupils who were assessed for KS3 in 2007 or 2008, the latter analysis was limited to the pupils who had their KS3 assessments in one of these years.

Model 5.1 shows that being a boy, being eligible for FSM, attending a special school and having a special educational need of any sort were all associated with lower KS3 results (Table 5.9). Pupil ethnicity did not affect KS3 results in this model.

Adding KS2 attainment to the analysis, as illustrated in Model 5.2, revealed that the KS3 attainment of pupils with 'VI only', in fact, matched that of pupils without SEN of the same prior attainment levels. This leads us to conclude that the attainment gap (although small) between pupils with VI only and pupils without SEN was probably already present before the pupils began secondary school. It then remained largely unchanged in later years. When controlling for prior attainment and the other factors, being of non-white ethnicity also had a positive effect on KS3 results. KS2 attainment was itself positively related to KS3 attainment. All other relationships remained as identified in Model 5.1.

**Table 5.9 Multiple linear regression: KS3 total point score**

	<b>Model 5.1</b> Coefficient direction	<b>Model 5.1</b> Statistical Significance	<b>Model 5.2</b> Coefficient direction	<b>Model 5.2</b> Statistical Significance
SEN status (ref: No SEN)				
VI only	-	Yes	-	No
VI & additional SEN	-	Yes	-	Yes
Other SEN	-	Yes	-	Yes
Gender - Boy (ref: Girl)	-	Yes	-	Yes
Ethnicity – Non-white (ref: White)	+	No	+	Yes
Eligible for FSM (ref: No)	-	Yes	-	Yes
School type – Special (ref: Secondary)	-	Yes	-	Yes
KS2 total point score	n/a	n/a	+	Yes

Base: All pupils in KS3

Source: NPD Wales (2006-2008) (own calculations)

Note: Statistical significance at 95 per cent level.

### **Factors affecting KS4 results**

The results of the regression analysis of KS4 attainment, the outcome measure being whether or not the pupil had attained Threshold 2, were very similar to those of the KS3 analysis. The only difference being that the type of school attended did not affect KS4 results and so this factor was removed from the final models (Table 5.10). Two types of analysis were, again, conducted: one excluding, the other including information about prior attainment.

The analysis excluding prior attainment (Model 5.3) showed that having any SEN, being a boy or being eligible for FSM were all associated with lower KS4 attainment. Being of non-white ethnic background was associated with higher attainment.

Analysis model 5.4 took into account all of the above factors and prior school results at KS3. All else equal, higher KS3 results were associated with higher KS4 results as was being of non-white ethnic origin. When controlling for prior attainment the KS4 results of blind and partially sighted pupils (both 'VI only' and VI and

additional SEN) were the same as those of pupils without SEN. As previously noted, this suggests that the attainment gap between blind and partially sighted pupils and pupils without SEN probably began before entry to secondary school. Being a boy, being eligible for FSM or having SEN other than visual impairment was associated with lower KS4 attainment.

**Table 5.10 Logistic regression: KS4 5 or more GCSEs A\*-C**

	<b>Model 5.3</b> Coefficient direction	<b>Model 5.3</b> Statistical Significance	<b>Model 5.4</b> Coefficient direction	<b>Model 5.4</b> Statistical Significance
SEN status (ref: No SEN)				
VI only	-	Yes	-	No
VI & additional SEN	-	Yes	-	No
Other SEN	-	Yes	-	Yes
Gender - Boy (ref: Girl)	-	Yes	-	Yes
Ethnicity – Non-white (ref: White)	+	Yes	+	Yes
Eligible for FSM (ref: No)	-	Yes	-	Yes
KS3 total point score	n/a	n/a	+	Yes

Base: All pupils in KS4

Source: NPD Wales (2006-2008) (own calculations)

Note: Statistical significance at 95 per cent level.

## 5.4 Individual progress in Wales

As already noted (e.g. Table 5.7), pupils completed KS3 with very different prior attainment levels. At KS4 between 2006 and 2008, about half of pupils with 'VI only' in Wales (52 per cent) had previously achieved Level 5 or above in KS3 English, maths and science (Table 5.11). This compared with 18 per cent of pupils with VI and additional SEN, 15 per cent of pupils with other SEN and 67 per cent of pupils without SEN.

Forty-eight per cent of pupils with 'VI only' and 32 per cent of pupils without SEN did not achieve Level 5 in the three core subjects. However, very few of these pupils failed to achieve an award or were working below the National Curriculum in these subjects. In contrast, the attainment of 15 per cent of pupils with VI and additional SEN was recorded as below the level at KS3.

**Table 5.11 Prior achievement (KS3) by SEN status (row %)**

	Total point score	Below level/ No award	Not at target level	Level 5 or above EMS	Base
No SEN	106	0	32	67	92,074
VI only	98		48	52	134
VI & additional SEN	76	15	67	18	79
Other SEN	80	2	83	15	17,762
All	101	1	40	59	110,049

Base: All pupils in KS4

Source: NPD Wales (2006-2008) (own calculations)

## **5.5 Individual progress: the value added measure**

Pupil progression between KS3 and KS4 was estimated using a value-added indicator that predicted KS4 results on the basis of KS3 attainment, and then comparing predicted with actual results.<sup>22</sup> The regression analysis used to predict KS4 results controlled for the pupils' gender, ethnicity and FSM eligibility.<sup>23</sup> The progression analysis revealed that on average progress between KS3 and KS4 differed between SEN status groups. Pupils without SEN, with 'VI only' and with VI and additional SEN typically performed as predicted by the model based on their KS3 scores and their personal characteristics. But the KS4 attainment of pupils with other SEN was below that predicted on the basis of their KS3 results (Table 5.12). In other words, the educational attainment of this group of pupils fell behind its previous level.

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<sup>22</sup> The same methodology was used to estimate progression of pupils in England (cp section 4.2, see also the technical notes).

<sup>23</sup> The mean progression scores for Wales are not comparable to those from England because the KS4 total point scores are on different scales.

**Table 5.12 KS3 to KS4 progression**

	Mean individual progress KS3 to KS4	Base
No SEN	0.41	90,568
VI only	-0.97	133
VI & additional SEN	0.16	78
Other SEN	-2.07	17,656
All	0	108,569

Base: All pupils in KS4

Source: NPD Wales 2006-2008 (own calculations)

Note: Progression measured as the difference between actual KS4 scores and KS4 scores predicted on the basis of KS3 scores controlling for pupil characteristics.

As noted with reference to the progression analysis for England, we again caution against reading too much into the findings from the progression analysis. KS3 and KS4 total point scores are not estimated uniformly, which limits their comparability. This said, comparisons between KS3 and KS4 results of the kind presented here are nevertheless commonly made and reflect the availability and nature of school attainment data.

## **5.6 Country Summary: Wales**

Overall achievement levels at KS3 and KS4 differed by SEN status; pupils without SEN performed best on average, followed by pupils with 'VI only' and pupils with VI and additional SEN; pupils with other SEN being the lowest performing groups.

These differences remained when controlling for a number of factors. However, when prior attainment was controlled for, there was no longer any difference between the attainment of 'VI only' pupils and the attainment of pupils without SEN. This was true for both KS3 and KS4. Moreover, at KS4, the level of attainment of pupils with VI and additional SEN and the level of attainment of pupils without SEN were also no longer different. This suggests that the educational gap between these groups of pupils may have developed before secondary school. At both Key Stages, the difference in attainment between pupils without SEN and pupils with other SEN remained even when controlling for prior attainment.

The findings from the individual progress analysis confirmed these findings. Progression between KS3 and KS4 was the same for both groups of blind and partially sighted pupils and pupils without SEN.

## **6 Blind and partially sighted pupils in Northern Ireland**

This chapter presents the results of the comparison of pupil attainment levels in Northern Ireland, based on analysis of the Northern Ireland School Leavers' Survey. The descriptive analysis was carried out by the Statistics and Research Branch of the Department of Education, Northern Ireland (DE) at the request of the authors and was based on three years' combined data (2006 to 2008).<sup>24</sup>

The School Leavers' Survey (SLS), conducted by DE, is an annual census of school leavers and includes information on the qualifications and destinations of leavers, their gender, age, year group, FSM entitlement and SEN type. The SLS data cover leavers from mainstream secondary and grammar schools, but not special schools. Attainment data refer to when the young people left secondary education, which may have been at the end of compulsory education at the age of 16 or after sitting A-levels. The SLS does not record prior attainment information such as Key Stage 2 or Key Stage 3 results.

### **6.1 A profile of blind and partially sighted pupils in Northern Ireland**

The NI SLS allows for school leavers with visual impairment as their only SEN ('VI only') to be identified alongside leavers with visual impairment and additional special educational needs ('VI and additional SEN'). In addition, school leavers with SEN other than a visual impairment ('Other SEN') and leavers without SEN ('No SEN') are identified. The latter group constituted 87 per cent of the school leaver population in Northern Ireland between 2006 and 2008 (Table 6.1). School leavers with 'VI only' accounted for 0.1 per cent of leavers, while leavers with VI and additional SEN accounted for a further 0.05 per cent. About 13 per cent of leavers had other special educational needs.

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<sup>24</sup> We would like to thank DE and its staff for their assistance and contributions to this study.

**Table 6.1 Prevalence of VI among school leavers**

	Frequency	%
No SEN	64,733	86.98
VI only	70	0.09
VI & additional SEN	36	0.05
Other SEN	9,583	12.88
All	74,422	100

Base: All school leavers

Source: SLS 2006-2008 (DE calculations)

School leavers with 'VI only' or VI and additional SEN differed from other leavers on a number of socio-demographic variables.<sup>25</sup> Compared with leavers without SEN, school leavers with SEN were more likely to be male than female. Thus, while 49 per cent of leavers without SEN were boys, this rose to 57 per cent of leavers with 'VI only', 61 per cent of leavers with VI and additional SEN, and 65 per cent of leavers with other SEN (Table 6.2).

**Table 6.2 Leaver gender by SEN status (row %)**

	Girl	Boy	Total	Base
No SEN	51	49	100	64,733
VI only	43	57	100	70
VI & additional SEN	39	61	100	36
Other SEN	35	65	100	9,583
All	49	51	100	74,422

Base: All school leavers

Source: SLS 2006-2008 (DE calculations)

Leavers with SEN, including visual impairment, were more likely to attend secondary schools rather than grammar schools, compared with leavers without SEN (Table 6.3). While 57 per cent of leavers without SEN attended secondary schools, 71 per cent of leavers with 'VI only', 86 per cent of leavers with VI and additional SEN, and 89 per cent of leavers with other SEN went to secondary schools.

<sup>25</sup> About one per cent of school leavers were of minority ethnic background, however, this did not vary with SEN status.

**Table 6.3 School types attended by leavers, by SEN status (row %)**

	Secondary Schools	Grammar Schools	Total	Base
No SEN	57	43	100	64,733
VI only	71	29	100	70
VI & additional SEN	86	14	100	36
Other SEN	89	11	100	9,583
All	61	39	100	74,422

Base: All school leavers

Source: SLS 2006-2008 (DE calculations)

Leavers with SEN were also more likely than others to be eligible for free school meals (FSM). Compared to 15 per cent of leavers without SEN, proportionately twice as many leavers with 'VI only' (30 per cent) or other SEN (31 per cent) were eligible for FSM. Thirty-nine per cent of leavers with VI and additional SEN were also eligible for FSM (Table 6.4).

**Table 6.4 Free school meals eligibility by SEN status (row %)**

	Eligible for FSM	Not eligible	Total	Base
No SEN	15	85	100	64,733
VI only	30	70	100	70
VI & additional SEN	39	61	100	36
Other SEN	31	69	100	9,583
All	17	83	100	74,422

Base: All school leavers

Source: SLS 2006-2008 (DE calculations)

Blind and partially sighted school leavers were disproportionately likely to be Catholic rather than Protestant or to share any other community background. While approximately half of leavers without SEN (49 per cent) and 55 per cent of leavers with other SEN were Catholic, this rose to 70 per cent of leavers with 'VI only' and 64 per cent of leavers with VI and additional SEN (Table 6.5).

**Table 6.5 Leaver community background by SEN status (row %)**

	Protestant	Catholic	Other	Total	Base
No SEN	43	49	8	100	64,733
VI only	26	70	4	100	70
VI & additional SEN	25	64	11	100	36
Other SEN	38	55	7	100	9,583
All	42	50	8	100	74,422

Base: All school leavers

Source: SLS 2006-2008 (DE calculations)

Finally, the majority of school leavers in Northern Ireland lived in urban areas (Table 6.6). Sixty per cent of 'VI only' leavers and leavers with VI and additional SEN lived in urban areas, as did 61 per cent of leavers without SEN. Sixty-seven per cent of leavers with other SEN lived in urban parts of Northern Ireland.

**Table 6.6 Urban-Rural categorisation by SEN status (row %)**

	Urban	Rural	Total	Base
No SEN	61	39	100	63,683
VI only	60	40	100	70
VI & additional SEN	60	40	100	35
Other SEN	67	33	100	9,381
All	62	38	100	73,169

Base: All school leavers

Source: SLS 2006-2008 (DE calculations)

## **6.2 Educational attainment of blind and partially sighted pupils in Northern Ireland**

The system of formal educational awards in Northern Ireland is based on GCSE,<sup>26</sup> which, unlike Key Stage 3 results, are captured in the NI SLS.<sup>27</sup> Analysis of the attainment of five or more GCSE

<sup>26</sup> See section 2 for an outline of the Key Stages and KS assessments.

<sup>27</sup> Unlike the attainment data sources for England, Wales and Scotland, the NI SLS does not record total point scores obtained by school leavers.

grades A\*-C, the most common performance indicator, revealed that almost three-quarters (72 per cent) of leavers without SEN had achieved this number and grade of qualification (Table 6.7). This compared with two-thirds (66 per cent) of leavers with 'VI only' and about one-fifth of leavers with VI and additional SEN and leavers with other SEN.

**Table 6.7 KS4 results by SEN status (cell %)**

	Achieved 5 or more GCSE A*-C	Base
No SEN	72	64,733
VI only	66	70
VI & additional SEN	19	36
Other SEN	22	9,583
All	65	74,422

Base: All school leavers

Source: SLS 2006-2008 (DE calculations)

Note: Row per cent

Logistic regression analysis was used to investigate whether observed differences in attainment remained even after taking into account differences between pupils and their schools, including their SEN status. This revealed that school leavers with 'VI only' were as likely as leavers without SEN to achieve five or more GCSEs graded A\* to C. However, compared with leavers without SEN, the odds of leavers with VI and additional SEN or leavers with other SEN achieving this attainment threshold were lower.

School leavers from a Catholic background were more likely to achieve five or more good GCSEs than school leavers of Protestant background. But school leavers of other community backgrounds were less likely to do so.

Again, controlling for other factors, being male, being eligible for FSM, and living in an urban area were all individually associated with lower likelihood that a school leaver achieved five or more A\*-C GCSEs. Attending a grammar school was associated with a greater likelihood of achieving five or more A\*-C GCSEs when compared with attending a non-grammar secondary school. Ethnicity did not affect attainment (Table 6.8).

**Table 6.8 Logistic regression: 5 or more GCSEs A\*-C**

	<b>Model 6.1</b> Coefficient direction	<b>Model 6.1</b> Statistical Significance
SEN status (ref: No SEN)		
VI only	+	No
VI & additional SEN	-	Yes
Other SEN	-	Yes
Gender - Boy (ref: Girl)	-	Yes
Community background (ref: Protestant)		
Catholic	+	Yes
Other	-	Yes
Eligible for FSM (ref: No)	-	Yes
School type – Grammar (ref: Secondary)	+	Yes
Area type - Urban (ref: Rural)	-	Yes

Base: All pupils in KS4

Source: SLS 2006-2008 (own calculations)

### 6.3 Country Summary: Northern Ireland

School leavers differed on most of the socio-demographic characteristics, in particular their gender mix, FSM eligibility and community background varied by SEN status.

There were also differences between the SEN categories on the standard measure of KS4 attainment (five or more GCSEs graded A\* to C). The percentage of pupils with visual impairment as their sole SEN attaining this threshold was lower than the percentage of pupils without SEN achieving this, but not as low as that for the other two SEN pupil categories. More detailed analysis revealed that the difference between 'VI only' school leavers and school leavers without SEN was entirely due to differences in the social composition of these young people, but not their SEN status. However, the attainment of leavers with VI and additional SEN and of leavers with other SEN remained below that of leavers without SEN even after controlling for differences in pupil and school characteristics. Their attainment gap was likely to have resulted from, or at least been affected by, their special educational needs.

## 7 Blind and partially sighted pupils in Scotland

This chapter turns to the analysis of data from the Scottish Annual Pupil Census (SAPC), which was linked to attainment data recorded for school leavers by the Scottish Qualification Authority (SQA). The SAPC covers leavers in all publicly funded (local authority and grant-aided) schools in Scotland and includes information on the leavers' gender, ethnicity, SEN<sup>28</sup> and disability status, the percentage of the pupils at the school who are registered for free school meals (FSM), area deprivation (the Index of Multiple Deprivation) and the Scottish Government urban-rural area indicator. The analysis of school attainment in Scotland observed **school leavers** in 2007.

SEN status was divided into three categories:

- Leavers without SEN
- Visually impaired (VI) leavers
- Leavers with other SEN.

The VI category included all school leavers who had a visual impairment or multi-sensory impairment<sup>29</sup> recorded as their main difficulty and/or as the reason for support detailed in their co-ordinated support plan<sup>30</sup> (CSP). The Scottish data did not allow leavers with VI as their sole SEN and leavers with VI and additional SEN to be separately identified.

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<sup>28</sup> The term used in Scotland is Additional Support Needs (ASN). For reasons of consistency, the term Special Educational Needs (SEN) is used throughout this report.

<sup>29</sup> Multi-sensory impairment (MSI) is a combination of visual and hearing difficulties.

<sup>30</sup> Co-ordinated support plans (CSP) were introduced in the Education (Additional Support for Learning) (Scotland) Act 2004. The education authorities are required to prepare CSP for those pupils with SEN who require a range of support from different services. The CSP details the reasons for the pupil's special needs, the services that are needed and how they will be co-ordinated (Scottish Government, 2004).

## 7.1 Education in Scotland

The education system and the qualifications awarded by secondary schools in Scotland are different from those in other parts of the UK. All Scottish secondary education mainstream qualifications come under the Scottish Credit and Qualifications Framework (SCQF). There are 12 levels of the framework, ranging from Access 1 to Doctorates (SCQF, 2007). The SCQF levels relevant to this study and examples of the corresponding qualifications are summarised below. These qualifications can be obtained at the end of the fourth year at secondary school (S4) when pupils are typically aged 16. They are:

**SCQF 1** – Access 1

**SCQF 2** – Access 2

**SCQF 3** – Access 3 or Standard grade (Foundation)

**SCQF 4** – Intermediate 1 or Standard grade (General)

**SCQF 5** – Intermediate 2 or Standard grade (Credit)

The Scottish data do not specifically record attainment at the end of S4, but report attainment at the time when the young people leave secondary education, regardless of their age at that time. Some pupils would have left at the end of compulsory schooling (i.e. at the end of S4) while others would have stayed on at S5 and S6 in order to obtain further qualifications. For those that stayed on, the attainment data also record the higher, post-16 qualifications, without these being distinguishable from previously obtained qualifications.

In terms of attainment levels, the school leaver data record the number of qualifications achieved at SCQF2 to SCQF5 (and other levels, which are outside the scope of this study). In addition, they records tariff scores. The tariff score is the sum of points awarded for different qualifications and grades. A higher tariff score can reflect better grades in the same qualification or more qualifications (including any achieved after S4), or both. Tariff scores may, therefore, be 'inflated' as a result of more years in education. This makes them less suitable for comparing pupils that are known to have rather different education histories and learning opportunities.

In order to obtain more suitable attainment benchmarks that would also permit some comparison with the other UK countries in this study, two threshold indicators were estimated:

- the proportion of leavers who achieved five or more qualifications at SCQF3; and
- the proportion of leavers who achieved five or more Standard Credit grades (SCQF 5).

The SCQF3 and SCQF5 indicators were derived by combining the information about the number of qualifications that pupils had achieved at that level (or above) with information about their tariff scores. For the SCQF5 indicator, pupils not only needed to have achieved five or more SCQF5 qualifications, but also accrued a tariff score at least equivalent to five Standard grades at Credit level. This indicator most closely resembled the attainment indicator of five or more GCSEs at grades A\*-C used elsewhere in this report. It was, hence, used in the statistical analysis of the factors that influenced school attainment, including the effect of SEN status and, in particular, visual impairment.

## **7.2 A profile of blind and partially sighted leavers in Scotland<sup>31</sup>**

The number of school leavers in Scotland identified with a visual impairment was relatively small. In 2007, one in 500 school leavers (100 in total) were blind or partially sighted (Table 7.1). Five per cent of school leavers (3,057 in total) had other SEN; the remaining 95 per cent of leavers had no recorded SEN.

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<sup>31</sup> Pupil's ethnicity was excluded from this and later analysis because, for many school leavers, it had not been recorded.

**Table 7.1 Prevalence of VI among Scottish school leavers (column %)**

	Frequency	%
No SEN	56,070	95.0
VI	100	0.2
Other SEN	3,057	5.0
All	59,227	100

Base: All school leavers

Source: SAPC 2007 (own calculations)

Higher than average proportions of leavers with VI (55 per cent) or other SEN (68 per cent) were boys, compared with leavers without SEN (49 per cent) (Table 7.2). Approximately half of Scotland's school leavers with VI (49 per cent) were disabled, or assessed disabled, compared with 24 per cent of leavers with other SEN. Very few leavers without SEN were identified as disabled (data not shown).

**Table 7.2 Leaver gender by SEN status (row %)**

	Girl	Boy	Total	Base
No SEN	51	49	100	56,070
VI	45	55	100	100
Other SEN	32	68	100	3,057
All	50	50	100	59,227

Base: All school leavers

Source: SAPC 2007 (own calculations)

School leavers with VI were more likely than others to live in large urban areas<sup>32</sup> (45 per cent compared with 35 per cent and 32 per cent among leavers without SEN and other SEN respectively) or, albeit less so, in areas of higher deprivation (44 per cent) (Table 7.3). However, it was school leavers with other SEN who were

<sup>32</sup> Under the Scottish Government urban rural classification, large urban areas are settlements of over 125,000 inhabitants, i.e. Glasgow, Edinburgh, Aberdeen and Dundee. The other areas of Scotland are classified as other urban, accessible or remote towns and accessible or remote rural areas (The Scottish Government, n.d).

most likely to live in more deprived areas (53 per cent of them lived in areas in the bottom two quintiles of deprivation) compared with 41 per cent of leavers without SEN.

**Table 7.3 Area characteristics by SEN status (cell %)**

	Large urban areas	Bottom 2 quintiles of area deprivation	Base
No SEN	35	41	56,070
VI	45	44	100
Other SEN	32	53	3,057
All	35	41	59,227

Base: All school leavers

Source: SAPC 2007 (own calculations)

School leavers with VI were particularly likely to have attended special schools. Approximately half (48%) of them had, compared with 22 per cent of leavers with other SEN (Table 7.4). Almost all leavers without SEN attended secondary schools.

**Table 7.4 School types attended by leavers, by SEN status (row %)**

	Special Schools	Secondary Schools	Total	Base
No SEN	0	100	100	56,070
VI	48	52	100	100
Other SEN	22	78	100	3,057
All	1	99	100	59,227

Base: All school leavers

Source: SAPC 2007 (own calculations)

The school leaver data did not contain information about the FSM status for individual leavers, but included the proportions of pupils at the leavers' schools who were registered for FSM (not shown). The average percentages of pupils registered for FSM in schools with VI leavers on the roll (19 per cent), and in schools with leavers with other SEN (17 per cent), were higher than the average at schools attended by leavers without SEN (13 per cent). The percentages were higher in special schools. Those attended by leavers with VI, on average, reported 33 per cent of their pupils eligible for FSM. Special schools attended by leavers with other

SEN reported 41 per cent of their pupils eligible for FSM (data not shown).

### 7.3 Educational attainment of blind and partially sighted school leavers

School leavers with VI typically performed less well than leavers without SEN, but better than leavers with other SEN (Table 7.5). The average total point score for school leavers with VI was 158, which compared with an average of 121 points for leavers with other SEN and 342 points for leavers without SEN.

As noted earlier, higher tariff scores could have resulted from very different education histories, in particular, from staying on in education after the age of 16. A more appropriate indicator than maximum point scores may be the attainment of a minimum number of qualifications and grades. On these indicators, school leavers with VI again performed less well than leavers without SEN and only marginally better than school leavers with other SEN.

Approximately half of leavers with VI (51 per cent) or other SEN (49 per cent) had achieved five or more SCQF3 level qualifications, compared with nine in ten (92 per cent) leavers without SEN. At the more advanced level of Credit Standard grades, fifty per cent of school leavers without SEN had obtained five or more Credit Standard grades, compared with about 13 per cent of leavers with VI and eight per cent of leavers with other SEN.

**Table 7.5 Leavers' qualifications by SEN status**

	Mean Total tariff score	5 or more Standard grades (Credit) (%)	5 or more qualifications at SCQF3 (%)	Base
No SEN	342	50	92	56,070
VI	158	13	51	100
Other SEN	121	8	49	3,057
All	333	48	89	59,227

Base: All school leavers

Source: SAPC 2007 (own calculations)

## 7.4 Factors relating to educational attainment in Scotland

Statistical analysis identified the main pupil and school characteristics that affected how well school leavers had performed in secondary education. The logistic analysis controlled for a set of variables describing pupils, their school and area where they lived in order to isolate the effect of visual impairment on performance. The performance indicator selected for this analysis was achieving the higher threshold of five or more Standard grades at Credit level.<sup>33</sup> The explanatory factors included in the model were:

- SEN status
- Pupil gender
- Pupil disability status
- The percentage of the pupils at the school who were registered for FSM
- A deprived area indicator (area falling in the bottom two quintiles of deprivation)
- School type
- An indicator for large urban area.

It was not possible to control for leavers' own prior performance. This information was not available for school leavers in Scotland.

All variables, including whether a pupil had a visual impairment or other SEN, affected school attainment. Compared with the reference categories, the likelihood that a pupil attained five or more Credit Standard grades was reduced by having SEN (VI or other SEN), being a boy, being disabled, attending a special school, attending a school with a higher percentage of pupils registered for FSM or living in a deprived area. The likelihood was greater for pupils who lived in a large urban area (Table 7.6).

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<sup>33</sup> A multiple linear regression model was also run with the total tariff score as the outcome variable. The results were very similar and only the results of the logistic regression are shown here.

**Table 7.6 Logistic regression: 5 or more Standard grades (Credit)**

	<b>Model 7.1</b> Coefficient direction	<b>Model 7.1</b> Statistical Significance
SEN status (ref: No SEN)		
VI	-	Yes
Other SEN	-	Yes
Gender - Boy (ref: Girl)	-	Yes
Disabled	-	Yes
Special school (ref: Secondary)	-	Yes
% of school eligible for FSM	-	Yes
Deprived area (ref: No)	-	Yes
Large urban area (ref: No)	+	Yes

Base: All school leavers

Source: SAPC 2007 (own calculations)

Note: Statistical significance at 95 per cent level.

## **7.5 Country Summary: Scotland**

The analysis of school leaver data for Scotland revealed markedly lower levels of attainment among leavers with visual impairment compared with leavers without any recorded special educational needs. The lowest levels of achievement were recorded for pupils with special educational needs other than visual impairment. The attainment gap between these two groups of school leavers, however, was smaller than between them and pupils without SEN.

An explanation for the lower performance of blind and partially sighted young people in Scotland compared with the other countries may be the lack of differentiation between blind and partially sighted leavers with VI as their sole SEN and those with additional SEN in the Scottish data.

School leavers with visual impairment were disproportionately likely to be male and/or to have a disability, which likened this group more to leavers with other SEN than leavers without SEN. Almost half of leavers with visual impairment had attended special schools, compared with only about one-fifth of leavers with other SEN. This might indicate greater support needs among visually impaired school leavers, but it was not possible to verify this with the available data.

Visually impaired school leavers were also more likely than others to live in urban areas of Scotland. Closer analysis revealed that living in an urban area had a positive influence on school attainment, whereas factors such as attending a special school, the presence of a disability and male gender had a negative effect on attainment. The latter three were disproportionately likely among visually impaired school leavers and, therefore, independently affected the chances of these school leavers attaining five or more SCQF 5 level qualifications. Visual impairment further reduced the likelihood that a school leaver had obtained this level of qualification.

## 8 Conclusions

This report explored the educational attainment of visually impaired pupils and pupils with other SEN in England, Wales, Northern Ireland and Scotland. The achievement at school of these young people was compared with that of young people who had no visual impairment or other form of SEN. For England and Wales, pupils' performance was investigated at Key Stages 3 and 4, when pupils are assessed by their teachers (Key Stage 3) or by examination (Key Stage 4). Pupils are typically age 14 or 16 when these assessments take place.

In Northern Ireland and Scotland, pupil performance in education is collected for school leavers. While in Northern Ireland school leavers' GCSE results that are similar to those in England and Wales are recorded, the Scottish education system differs from that of the rest of the UK. It assesses pupils according to Scottish Credit and Qualifications Framework (SCQF), which includes Standard Credit grades (SCQF 5).

The main findings of the study are:

- In all four countries, pupils with visual impairment performed less well than pupils without SEN, but better than pupils who had other SEN.
- In England and Wales, where it could be tested, this was true for both Key Stages 3 and 4.
- Also in England and Wales, Key Stage results were affected by prior educational attainment. Attainment gaps appeared to emerge early in the young persons' schooling and did not narrow in later years.
- Pupils with visual impairment and additional SEN, on average, performed less well than pupils whose only SEN was a visual impairment. This could only be tested for England, Wales and Northern Ireland.
- Differences in pupils' attainment results reflected a range of social and demographic differences as well as the pupils' special educational needs. Once these differences were taken into account, the educational attainment of pupils with visual impairment, but no other SEN, was only marginally below that of pupils with no SEN. The attainment levels of all

other pupils with SEN remained below that of pupils without SEN and of pupils with visual impairment as their sole SEN.

## 8.1 Comparing the countries

Although this study investigated educational attainment of pupils in the four countries of the UK, it did not specifically attempt to compare the results across England, Wales, Northern Ireland and Scotland. Differences in the educational systems and the data sources make direct comparisons difficult, if not impossible. The statistics also pertained to slightly different time periods. They referred to the year 2007 for England and Scotland, but the years 2006 to 2008 in Wales and Northern Ireland. In Wales and Northern Ireland, it was necessary to combine data in order to have a sufficiently large pool of pupils that could be analysed.

Differences between data sources concerned the population of pupils, the range or types of schools covered, and the detail of SEN that was identified in the datasets. Below we summarise these differences and briefly assess their likely effect on our analysis results and their comparability across countries.

### England

- The National Pupil Database (NPD) for England records attainment levels for the relevant key stages.
- The SEN type of pupils who received school action support are not specifically identified. As a result, pupils described in our analysis as without SEN, in fact, include some pupils with lesser forms of SEN that trigger SA support.
- This may reduce the measured gap in attainment levels between pupils without SEN and pupils with SEN, in particular the VI only group.

### Wales

- Like the NPD for England, the NPD for Wales records attainment levels for the relevant key stages.
- Unlike the NPD for England, the NPD for Wales separately identifies the type of SEN for pupils who receive SA support (as well as identifying pupils with SA+ support or a Statement of SEN).

- The separate identification of pupils with SA (which allows them to be allocated to the relevant groups of pupils with SEN) may have increased the measured gap in attainment levels of pupils without SEN and pupils with SEN relative to that estimated for England.

#### Northern Ireland

- In Northern Ireland, attainment levels are recorded at the point when young people leave secondary education. Young people may have left compulsory education at the age of 16 or after sitting A-levels.
- The Northern Ireland School Leavers Survey (SLS) covers leavers from mainstream secondary and grammar schools, but not special schools (unlike the other three countries).
- Measuring school leavers' attainment rather than KS3 or KS4 attainment at earlier ages and the exclusion of special schools from the dataset may have inflated overall attainment levels compared to England, Wales or Scotland.

#### Scotland

- Like the NI SLS, the Scottish Annual Pupil Census (SAPC) records attainment levels at the point when young people leave secondary education.
- The SAPC only identifies three SEN categories, namely visual impairment, other SEN and no SEN. Pupils with a visual impairment may also experience other types of SEN.
- The combining of pupils with visual impairment into one group is likely to lower this group's attainment levels compared to pupils without SEN, while bringing attainment levels closer to those of pupils with other SEN (but not visual impairment).
- Measuring school leavers' attainment rather than KS3 or KS4 attainment may have increased overall attainment levels compared to England or Wales. However, no direct comparison is possible because of differences in the countries' educational award systems.

In Table 6.1, we draw together the educational attainment information for the various SEN groups that is most comparable across the countries. The attainment information covers Key Stage 4 or school leaver qualifications, measured in terms of the proportion of pupils who had achieved five or more GCSE grades

A\*-C (in England, Wales and Northern Ireland) or five or more Standard grades at Credit level in Scotland.

**Table 6.1 GCSE results by SEN status (cell %)**

	England: 5 or more GCSE A*-C	Wales: 5 or more GCSE A*-C	Northern Ireland: 5 or more GCSE A*-C	Scotland: 5 or more Standard grades (Credit)
No SEN	64	62	72	50
VI only	54	46	66	n/a
VI & additional SEN*	15	14	19	13
Other SEN	13	14	22	8
All	59	54	65	48

Source: Tables 3.2 (England), 5.8 (Wales), 6.7 (Northern Ireland), 7.5 Scotland

\* Scottish leavers in this category may or may not have additional SEN.

In England, 54 per cent of pupils with 'VI only' achieved five or more GCSE grades A\*-C, compared with 46 per cent of pupils with 'VI only' in Wales and 66 per cent of school leavers with 'VI only' in Northern Ireland. The proportion of young people with VI and additional SEN who achieved the GCSE grade threshold was 15 per cent in England and 14 per cent in Wales. Nineteen per cent of school leavers with VI and additional SEN achieved this level of attainment in Northern Ireland.

Scottish Standard grades (at Credit level) are the closest comparison to GCSE grades. The SAPC did not distinguish between pupils with 'VI only' and pupils with VI and additional SEN. Thirteen per cent of the combined group of pupils with VI with or without additional SEN achieved five or more Standard grades at Credit level. This would appear to be a markedly smaller proportion of pupils with VI than in the other three countries. However, attainment levels for **all** pupils generally varied across countries and were particularly low in Scotland. In England, 59 per cent of pupils achieved five or more GCSE graded A\*-C (in 2007), compared to 54 per cent of pupils in Wales (in 2006-2008) and 65 per cent of school leavers in Northern Ireland (in 2006-08). In Scotland, 48 per cent of all school leavers achieved five or more

Standard grades at Credit level (in 2007). The difference in the proportions of pupils achieving the respective grades in Scotland and the other three countries most likely reflects the countries' different education systems and the young persons' different educational choices. It should not be read as indicating typically lower levels of attainment in Scotland.

Although a direct comparison of attainment levels should, therefore, only be attempted with considerable caution, the statistics for all four countries show similar patterns: highest attainment levels for pupils without SEN, lower attainment levels for pupils with visual impairment and lowest attainment levels for pupils with other SEN.

## **8.2 The nature of attainment gaps**

Pupils with SEN often include more boys and more young persons from disadvantaged social backgrounds. Because boys and pupils from disadvantaged background generally perform less well at school, the aggregate results of pupils with visual impairment are lower than those of pupils without SEN.

Regression analysis of attainment levels can control for these differences. Regression analyses conducted in the course revealed that after controlling for pupils' characteristics and backgrounds there was still an attainment gap between blind and partially sighted pupils and pupils without SEN in England and Wales. In Northern Ireland, the attainment gap to pupils without SEN was still evident for pupils with VI and additional SEN and pupils with other SEN, but not for pupils with 'VI only'.

For England and Wales, further analyses also took into account the pupils' school results at the previous Key Stage. They revealed that how pupils with 'VI only' performed at the previous KS typically accounted for the difference between their current school attainment and that of pupils without SEN. This was found to be the case for results at KS3 and KS4 in both England and Wales. At KS4 in Wales, the same was also true for pupils with VI and additional SEN.

This finding suggests that these pupils performed less well than pupils without SEN at the current KS because they were already

performing less well at the previous KS. However, they did not fall behind further.

But this was not true for pupils with other SEN or VI and additional SEN (in England at both key stages and in Wales at KS3). These pupils continued to record lower attainment levels, even after their past attainment had been taken into account and appeared to be falling behind further.

### **8.3 Conclusion**

The study thus found that visual impairment did make a difference to educational attainment, but that the strongest effect was that of other or additional SEN. This effect was sustained even when socio-demographic differences between pupils with and without SEN were taken into account. In England and Wales, the study found evidence of attainment gaps between pupils with and without SEN emerging early in their educational careers – and certainly before they reached KS3 or KS4. Attainment gaps also failed to narrow between Key Stages and for pupils with VI and additional SEN there was some evidence of the gap widening.

The study raises a number of questions with respect to the analysis and comparison of the educational attainment of pupils with and without visual impairment. Most notably, the data used in this study provided very limited information about the severity of visual impairment. They also did not record when a visual impairment was first observed or when a pupil first received educational support in response to the impairment (or other SEN). In the specific case of England, the data did not separately identify pupils with comparatively minor forms of SEN who received School Action support. These differences between data and gaps in the information limit the extent to, and detail with, which attainment levels of pupils with and without visual impairment or SEN can be analysed. Although this does not change the main findings of this study, it highlights the scope for enhancing educational attainment data.

## Technical Notes

### Total point scores

The total point score measures at KS3 and KS4 included in the English and Welsh NPD data are based on the type and grade of each qualification awarded to a pupil. For KS3 the total point score was calculated for the Wales analysis by the authors to match the English KS3 point score. Points are awarded based on the national curriculum levels awarded in each of the three core subjects (English, maths and science) as outlined below:

	English	Maths	Science
Level 8	n/a	51	n/a
Level 7	45	45	45
Level 6	39	39	39
Level 5	33	33	33
Level 4	27	27	27
Level 3	21	21	21
Level 2	n/a	15	15
Not awarded a level/ Working below level	21	15	15

Source: DCSF (2005)

A new system of allocating points for each KS4 qualification was introduced by DCSF in 2005, based on the grade awarded for each GCSE or equivalent. The KS4 total point score used in the analysis of the English data in this report was based on the new system, while the total point score provided with the Welsh data was based on the old system. Both are shown below.

	Old	New
A*	8	58
A	7	52
B	6	46
C	5	40
D	4	34
E	3	28
F	2	22
G	1	16

Source: Ofsted (n.d)

## Multi-level Modelling: derivation of the categorical KS3 variable

The background to the derivation of the categorical KS3 variable used as the prior attainment control variable in the MLM was as follows:

- The KS3 total point score is made up of the points awarded for performance on the English, maths and science teacher assessments at KS3.
- The national standard for KS3 is Level 5. Thirty-three points are awarded for Level 5 in each of the subjects. Thus, a pupil who achieves 99 points or above meets or exceeds the national standard at KS3. This was the reference category in the MLM.
- Pupils with total point scores ranging between 52 and 98 points have not achieved the national standard for their age group.
- A pupil working below the level of the test, or not awarded a level for the test, is awarded 21 points for English and 15 points for math and science respectively. Thus 51 points (21+15+15 points) is equivalent to working below the level of, or not being awarded a level for, the assessment in all three subjects.
- Pupils with fewer than 51 points have missing information. The category includes pupils who were absent and pupils who were working at the level of the assessment but were unable to access it.

## Individual progress: the value added measure

The NPD England data include a contextual value added (CVA) measure of progress for each pupil, developed by DCSF. The CVA is a measure of progress over a period of time. It shows the difference between the pupil's actual attainment and that predicted by a multilevel model based on their prior attainment and taking into account pupil specific and contextual factors.

The factors controlled for in this report were very similar to those included in the CVA model, since both rely on NPD data and are limited to the same range of variables. The factors for the CVA model are gender, SEN (School Action or School Action Plus/ statement), ethnicity (19 groups), FSM eligibility, first language (other than English), mobility (moving school at non-standard transfer times), age, in care and IDACI. The school-level factors

entered included measures average exam result at the school attended (DCSF, 2007b).

The inclusion of an SEN indicator (whether the pupil was in receipt of School Action or School Action Plus/had a statement of SEN) in the estimation of the CVA makes the indicator unsuitable for comparisons across SEN types. For this reason, the present study estimated a value added measure that did not take SEN status into account, but otherwise closely mirrored the official CVA estimation method.

A multiple linear regression model was run with the capped KS4 total point score as the outcome variable and total KS3 point score, gender, ethnicity (white or other), first language (English or other), FSM eligibility and area deprivation quintiles as explanatory variables. The model produced a predicted KS4 point score for each pupil. The progress estimate was derived by subtracting the predicted from the actual capped KS4 point score. A positive value on this progression measure indicates that a pupil achieved a higher point score than would have been predicted on the basis of their prior attainment at KS3, while also accounting for the pupil's characteristics. A negative value indicates that the pupil failed to attain the level of attainment predicted. A value of zero indicates that the pupil performed as predicted.

The same methodology was followed using data for Wales, with the exception that a more limited range of individual characteristics was available for the modelling. The Welsh progression model used in this report controlled for gender, ethnicity and FSM eligibility.

ANOVA was used to compare the mean progress scores across the different SEN categories.

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## Appendix A - Tables Characteristics at KS3

England

**Table A.1 Individual characteristics by SEN status (row %)**

	Girl	Boy	Total	Base
No SEN	51	49	100	526,175
VI only	44	56	100	434
VI & additional SEN	40	60	100	536
Other SEN	30	70	100	52,408
All	49	51	100	579,553

Base: All pupils in KS3

Source: NPD England 2007 (own calculations)

**Table A.2 Individual characteristics by SEN status (row %)**

	White	Black	Asian	Other	Total	Base
No SEN	85	4	7	4	100	512,758
VI only	82	4	10	5	100	428
VI & additional SEN	83	3	11	3	100	526
Other SEN	86	4	5	4	100	51,328
All	85	4	7	4	100	565,040

Base: All pupils in KS3

Source: NPD England 2007 (own calculations)

**Table A.3 First language by SEN status (row %)**

	English	Not English	Total	Base
No SEN	90	10	100	524,773
VI only	86	14	100	434
VI & additional SEN	88	12	100	536
Other SEN	92	8	100	52,393
All	90	10	100	578,136

Base: All pupils in KS3

Source: NPD England 2007 (own calculations)

**Table A.4 Deprivation indicators by SEN status (row %)**

	Bottom	2nd	3rd	4th	Top	Total	Base
No SEN	22	20	19	19	19	100	519,654
VI only	29	21	19	16	15	100	434
VI & additional SEN	30	23	19	15	13	100	535
Other SEN	34	24	17	14	11	100	52,116
All	23	21	19	19	19	100	572,739

Base: All pupils in KS3

Source: NPD England 2007 (own calculations)

**Table A.5 Deprivation indicators by SEN status (row %)**

	Eligible for FSM	Not eligible	Total	Base
No SEN	13	87	100	500,938
VI only	16	84	100	411
VI & additional SEN	27	73	100	503
Other SEN	29	71	100	47,474
All	14	86	100	549,326

Base: All pupils in KS3

Source: NPD England 2007 (own calculations)

Wales

**Table A.6 Individual characteristics by SEN status (row %)**

	Girl	Boy	Total	Base
No SEN	53	47	100	88,189
VI only	41	59	100	126
VI & additional SEN	41	59	100	113
Other SEN	35	65	100	22,202
All	49	51	100	110,630

Base: All KS3 pupils

Source: NPD Wales (2006-2008) (own calculations)

**Table A.7 Ethnicity by SEN status (row %)**

	White	Black	Asian	Other	Total	Base
No SEN	96	1	0	2	100	86,350
VI only	98	2			100	124
VI & additional SEN	95	1		4	100	108
Other SEN	96	1	1	2	100	21,588
All	96	1	0	2	100	108,170

Base: All KS3 pupils

Source: NPD Wales (2006-2008) (own calculations)

**Table A.8 Free school meals eligibility by SEN status (row %)**

	Eligible for FSM	Not eligible	Total	Base
No SEN	13	87	100	88,189
VI only	17	83	100	126
VI & additional SEN	27	73	100	113
Other SEN	28	72	100	22,202
All	16	84	100	110,630

Base: All KS3 pupils

Source: NPD Wales (2006-2008) (own calculations)

**Table A.9 SEN provision received, by SEN status (row %)**

	No special provision	School action	School action plus	Statement of SEN	Total	Base
No SEN	100	0	0	0	100	88,189
VI only	1	25	37	38	100	126
VI & additional SEN		21	30	49	100	113
Other SEN	0	53	27	20	100	22,202
All	79	11	6	4	100	110,630

Base: All pupils in KS3

Source: NPD Wales (2006-2008) (own calculations)

**Table A.10 School types attended by pupils, by SEN status (row %)**

	Secondary	Special		Base
No SEN	100	0	100	88,162
VI only	99	1	100	126
VI & additional SEN	79	21	100	113
Other SEN	94	6	100	22,132
All	99	1	100	110,533

Base: All pupils in KS3

Source: NPD Wales (2006-2008) (own calculations)

## Appendix B - Statistical modelling tables - England

**Table B.1 Multiple linear regression: KS3 total point score  
Model 3.1**

	B	S.E.	Sig	Lower CI for B	Upper CI for B
SEN status (ref: No SEN)					
VI only	-7.757	0.969	<0.001	-9.657	-5.858
VI & additional SEN	-30.901	0.880	<0.001	-32.626	-29.177
Other SEN	-28.146	0.096	<0.001	-28.335	-27.958
Gender - Boy (ref: Girl)	-0.523	0.053	<0.001	-0.628	-0.419
Ethnicity – Non-white (ref: White)	2.599	0.102	<0.001	2.399	2.799
First language – Other (ref: English)	0.765	0.127	<0.001	0.516	1.014
Eligible for FSM (ref: No)	-9.112	0.082	<0.001	-9.272	-8.952
Area deprivation quintile (ref: most deprived)					
2nd quintile	3.707	0.083	<0.001	3.545	3.869
3rd quintile	7.549	0.086	<0.001	7.381	7.717
4th quintile	10.709	0.087	<0.001	10.537	10.880
5th quintile	14.347	0.088	<0.001	14.173	14.520
Constant	100.095	0.071	<0.001		

Base: All pupils in KS3

Source: NPD England 2007 (own calculations)

**Table B.2 Multiple linear regression: KS3 total point score****Model 3.2**

	B	S.E.	Sig	Lower CI for B	Upper CI for B
SEN status (ref: No SEN)					
VI only	-0.847	0.681	0.213	-2.182	0.487
VI & additional SEN	-5.129	0.619	<0.001	-6.342	-3.916
Other SEN	-6.130	0.074	<0.001	-6.275	-5.986
Gender - Boy (ref: Girl)	-0.267	0.038	<0.001	-0.341	-0.194
Ethnicity – Non-white (ref: White)	1.907	0.072	<0.001	1.766	2.048
First language – Other (ref: English)	3.358	0.089	<0.001	3.183	3.533
Eligible for FSM (ref: No)	-3.773	0.058	<0.001	-3.886	-3.660
Area deprivation (ref: most deprived)					
2nd quintile	2.105	0.058	<0.001	1.991	2.219
3rd quintile	3.879	0.060	<0.001	3.761	3.998
4th quintile	5.423	0.062	<0.001	5.302	5.544
5th quintile	7.163	0.063	<0.001	7.040	7.286
KS2 total point score	1.126	0.002	<0.001	1.123	1.129
Constant	8.211	0.134	<0.001		

Base: All pupils in KS3

Source: NPD England 2007 (own calculations)

**Table B.3 Ordinary logistic regression: 5 or more****GCSEs A\*-C****Model 3.3**

	B	S.E.	Sig	Odds Ratio	Lower CI for OR	Upper CI for OR
SEN status (ref: No SEN)						
VI only	-0.293	0.100	0.003	0.746	0.613	0.908
VI & additional SEN	-2.309	0.134	<0.001	0.099	0.076	0.129
Other SEN	-2.309	0.014	<0.001	0.099	0.097	0.102
Gender - Boy (ref: Girl)	-0.322	0.006	<0.001	0.725	0.717	0.733
Ethnicity – Non-white (ref: White)	0.339	0.011	<0.001	1.403	1.372	1.435
First language – Other (ref: English)	0.039	0.013	0.004	1.040	1.013	1.067
Eligible for FSM (ref: No)	-0.736	0.009	<0.001	0.479	0.471	0.488
Area deprivation (ref: most deprived)						
2nd quintile	0.219	0.009	<0.001	1.245	1.224	1.266
3rd quintile	0.561	0.009	<0.001	1.753	1.722	1.785
4th quintile	0.892	0.009	<0.001	2.439	2.394	2.484
5th quintile	1.242	0.010	<0.001	3.462	3.395	3.530
Constant	0.246	0.007	<0.001			

Base: All pupils in KS4

Source: NPD England 2007 (own calculations)

**Table B.4 Ordinary logistic regression: 5 or more****GCSEs A\*-C****Model 3.4**

	B	S.E.	Sig	Odds Ratio	Lower CI of OR	Upper CI of OR
SEN status (ref: No SEN)						
VI only	0.126	0.135	0.352	1.134	0.870	1.478
VI & additional SEN	-0.570	0.175	0.001	0.566	0.402	0.797
Other SEN	-0.848	0.017	<0.001	0.428	0.414	0.443
Gender - Boy (ref: Girl)	-0.438	0.007	<0.001	0.645	0.636	0.655
Ethnicity – Non-white (ref: White)	0.304	0.015	<0.001	1.356	1.317	1.396
First language – Other (ref: English)	0.597	0.018	<0.001	1.816	1.752	1.882
Eligible for FSM (ref: No)	-0.322	0.012	<0.001	0.725	0.708	0.742
Area deprivation (ref: most deprived)						
2nd quintile	-0.045	0.011	<0.001	0.956	0.935	0.977
3rd quintile	0.080	0.012	<0.001	1.083	1.059	1.108
4th quintile	0.242	0.012	<0.001	1.274	1.244	1.304
5th quintile	0.410	0.013	<0.001	1.508	1.471	1.545
KS3 total point score	0.096	0.000	<0.001	1.101	1.100	1.101
Constant	-9.104	0.029	<0.001			

Base: All pupils in KS4

Source: NPD England 2007 (own calculations)

**Table B.5 Ordinary logistic regression: 5 or more GCSEs A\*-C**

**Additional analysis model**

	B	S.E.	Sig	Odds Ratio	Lower CI for OR	Upper CI for OR
SEN status (ref: VI only)						
VI & additional SEN	-1.560	0.272	<0.001	0.210	0.123	0.358
Other SEN	-1.714	0.150	<0.001	0.180	0.134	0.242
Gender - Boy (ref: Girl)	-0.143	0.027	<0.001	0.866	0.821	0.914
Ethnicity – Non-white (ref: White)	0.356	0.048	<0.001	1.428	1.300	1.569
First language – Other (ref: English)	0.227	0.059	<0.001	1.255	1.119	1.408
Eligible for FSM (ref: No)	-0.600	0.038	<0.001	0.549	0.510	0.591
Area deprivation (ref: most deprived)						
2nd quintile	0.143	0.040	<0.001	1.153	1.067	1.247
3rd quintile	0.487	0.041	<0.001	1.627	1.501	1.763
4th quintile	0.766	0.042	<0.001	2.151	1.982	2.335
5th quintile	1.098	0.043	<0.001	2.998	2.755	3.263
Support – Statement (ref: SA+)	-0.049	0.200	0.808	0.953	0.644	1.409
SEN*Statement						
VI & add*Statement	-0.601	0.345	0.082	0.548	0.279	1.079
Other SEN*Statement	-0.788	0.202	<0.001	0.455	0.306	0.676
Constant	-0.109	0.152	0.475	0.897		

Base: Pupils with known SEN type in KS4

Source: NPD England 2007 (own calculations)

**Table B.6 Multilevel logistic regression: 5 or more**

**GCSEs A\*-C**

**Model 3.5**

<b>Fixed part</b>	<b>B</b>	<b>S.E.</b>	<b>Sig</b>	<b>Odds Ratio</b>	<b>Lower CI for OR</b>	<b>Upper CI for OR</b>
<b>Individual Factors</b>						
SEN status (ref: No SEN)						
VI only	-0.289	0.108	Yes	0.749	0.606	0.926
VI & additional SEN	-1.932	0.148	Yes	0.145	0.108	0.194
Other SEN	-2.206	0.015	Yes	0.110	0.107	0.113
Gender - Boy (ref: Girl)	-0.349	0.006	Yes	0.705	0.697	0.714
Ethnicity – Non-white (ref: White)	0.216	0.014	Yes	1.241	1.208	1.276
First language – Other (ref: English)	0.300	0.016	Yes	1.350	1.308	1.393
Eligible for FSM (ref: No)	-0.782	0.010	Yes	0.457	0.449	0.467
<b>Area deprivation (ref: most deprived)</b>						
2nd quintile	0.297	0.010	Yes	1.346	1.320	1.372
3rd quintile	0.612	0.011	Yes	1.844	1.805	1.884
4th quintile	0.913	0.011	Yes	2.492	2.439	2.546
5th quintile	1.212	0.012	Yes	3.360	3.282	3.440
<b>School Factors</b>						
<b>School type (ref: Community)</b>						
Voluntary aided or controlled	0.597	0.040	Yes	1.817	1.680	1.965
Foundation	0.469	0.041	Yes	1.598	1.475	1.732
Special	-3.780	0.179	Yes	0.023	0.016	0.032
Constant	0.182	0.021				
<b>Random part</b>						
Constant (school level)	0.685	0.019				

Base: All pupils in KS4

Source: NPD England 2007 (own calculations)

Note: Statistical significance at 95 per cent level.

**Table B.7 Multilevel logistic regression: 5 or more**

**GCSEs A\*-C**

**Model 3.6**

<b>Fixed part</b>	<b>B</b>	<b>S.E.</b>	<b>Sig</b>	<b>Odds Ratio</b>	<b>Lower CI for OR</b>	<b>Upper CI for OR</b>
<b>Individual Factors</b>						
SEN status (ref: No SEN)						
VI only	0.025	0.131	No	1.025	0.793	1.325
VI & additional SEN	-1.087	0.173	Yes	0.337	0.240	0.473
Other SEN	-1.312	0.018	Yes	0.269	0.260	0.279
Gender - Boy (ref: Girl)	-0.407	0.008	Yes	0.666	0.655	0.676
Ethnicity – Non-white (ref: White)	0.320	0.016	Yes	1.377	1.335	1.421
First language – Other (ref: English)	0.667	0.020	Yes	1.948	1.873	2.026
Eligible for FSM (ref: No)	-0.560	0.012	Yes	0.571	0.558	0.585
Area deprivation (ref: most deprived)						
2nd quintile	0.207	0.012	Yes	1.230	1.201	1.259
3rd quintile	0.445	0.013	Yes	1.560	1.521	1.601
4th quintile	0.696	0.014	Yes	2.006	1.951	2.062
5th quintile	0.925	0.015	Yes	2.522	2.449	2.597
KS3 results (ref: Level 5+ EMS)						
Incomplete	-3.271	0.025	Yes	0.038	0.036	0.040
Below level/ No award	-5.251	0.130	Yes	0.005	0.004	0.007
Not at expected level	-2.924	0.008	Yes	0.054	0.053	0.055
<b>School Factors</b>						
School type (ref: Community)						
Voluntary aided or controlled	0.382	0.041	Yes	1.465	1.352	1.588
Foundation	0.302	0.042	Yes	1.353	1.246	1.469
Special	-2.454	0.185	Yes	0.086	0.060	0.124
Constant	1.491	0.022				
Random part						
Constant (school level)	0.700	0.019				

Base: All pupils in KS4

Source: NPD England 2007 (own calculations)

Note: Statistical significance at 95 per cent level.

## Appendix C - Statistical modelling tables - Wales

**Table C.1 Multiple linear regression: KS3 total point score  
Model 4.1**

	B	S.E.	Sig	Lower CI for B	Upper CI for B
SEN status (ref: No SEN)					
VI only	-9.806	1.436	<0.001	-12.621	-6.992
VI & additional SEN	-21.581	1.587	<0.001	-24.691	-18.471
Other SEN	-21.731	0.127	<0.001	-21.980	-21.482
Gender - Boy (ref: Girl)	-0.696	0.098	<0.001	-0.888	-0.504
Ethnicity – Non-white (ref: White)	0.157	0.255	0.538	-0.342	0.656
Eligible for FSM (ref: No)	-10.386	0.134	<0.001	-10.649	-10.123
School type – Special (ref: Secondary)	-29.889	0.473	<0.001	-30.815	-28.963
Constant	107.567	0.074	<0.001		

Base: All pupils in KS3

Source: NPD Wales (2006-2008) (own calculations)

**Table C.2 Multiple linear regression: KS3 total point score  
Model 4.2**

	B	S.E.	Sig	Lower CI for B	Upper CI for B
SEN status (ref: No SEN)					
VI only	-2.191	1.337	0.101	-4.811	0.430
VI & additional SEN	-2.684	1.313	0.041	-5.257	-0.111
Other SEN	-5.067	0.132	<0.001	-5.325	-4.809
Gender - Boy (ref: Girl)	-0.620	0.088	<0.001	-0.793	-0.447
Ethnicity – Non-white (ref: White)	2.433	0.243	<0.001	1.957	2.909
Eligible for FSM (ref: No)	-5.087	0.124	<0.001	-5.330	-4.845
School type – Special (ref: Secondary)	-11.171	0.488	<0.001	-12.128	-10.214
KS2 total point score	1.013	0.004	<0.001	1.005	1.021
Constant	19.384	0.361	<0.001		

Base: All pupils in KS3

Source: NPD Wales (2006-2008) (own calculations)

**Table C.3 Ordinary logistic regression: 5 or more GCSEs A\*-C**

**Model 4.3**

	B	S.E.	Sig	Odds Ratio	Lower CI for OR	Upper CI for OR
SEN status (ref: No SEN)						
VI only	-0.652	0.179	<0.001	0.521	0.367	0.739
VI & additional SEN	-2.156	0.306	<0.001	0.116	0.063	0.211
Other SEN	-2.159	0.023	<0.001	0.115	0.110	0.121
Gender - Boy (ref: Girl)	-0.326	0.013	<0.001	0.722	0.703	0.741
Ethnicity – Non-white (ref: White)	0.215	0.040	<0.001	1.240	1.147	1.340
Eligible for FSM (ref: No)	-1.357	0.021	<0.001	0.257	0.247	0.268
Constant	0.851	0.010	<0.001			

Base: All pupils in KS3

Source: NPD Wales (2006-2008) (own calculations)

**Table C.4 Ordinary logistic regression: 5 or more GCSEs A\*-C**

**Model 4.4**

	B	S.E.	Sig	Odds Ratio	Lower CI for OR	Upper CI for OR
SEN status (ref: No SEN)						
VI only	-0.084	0.254	0.742	0.920	0.559	1.515
VI & additional SEN	-0.690	0.459	0.133	0.502	0.204	1.234
Other SEN	-0.437	0.032	<0.001	0.646	0.607	0.688
Gender - Boy (ref: Girl)	-0.475	0.019	<0.001	0.622	0.599	0.645
Ethnicity – Non-white (ref: White)	0.454	0.056	<0.001	1.575	1.411	1.757
Eligible for FSM (ref: No)	-0.760	0.029	<0.001	0.467	0.442	0.495
KS3 total point score	0.155	0.001	<0.001	1.167	1.165	1.170
Constant	-15.049	0.101	<0.001			

Base: All pupils in KS3

Source: NPD Wales (2006-2008) (own calculations)

## Appendix D - Statistical modelling tables – Northern Ireland

**Table D.1 Logistic regression: 5 or more GCSEs A\*-C**

**Model 6.1**

	B	S.E.	Sig	Odds Ratio	Lower CI for OR	Upper CI for OR
SEN status (ref: No SEN)						
VI only	.134	.292	.647	1.143	.645	2.026
VI & additional SEN	-2.196	.558	<0.001	.111	.037	.332
Other SEN	-1.748	.031	<0.001	.174	.164	.185
Gender - Boy (ref: Girl)	-.703	.020	<0.001	.495	.476	.515
Community background (ref: Protestant)						
Catholic	.516	.021	<0.001	1.676	1.608	1.746
Other	-.079	.040	.045	.924	.855	.998
Eligible for FSM (ref: No)	-.900	.025	<0.001	.407	.387	.427
School type – Grammar (ref: Secondary)	3.339	.034	<0.001	28.184	26.342	30.155
Area type - Urban (ref: Rural)	-.300	.021	<0.001	.741	.711	.771
Constant	.578	.023	<0.001	1.782		

Base: All pupils in KS4

Source: SLS 2006-2008 (DE calculations)

## Appendix E - Statistical modelling tables - Scotland

**Table E.1 Logistic regression: 5 or more S-grades (Credit)  
Model 7.1**

	B	S.E.	Sig	Odds Ratio	Lower CI for OR	Upper CI for OR
SEN status (ref: No SEN)						
VI	-1.590	.398	<0.001	.204	.093	.445
Other SEN	-2.114	.073	<0.001	.121	.105	.139
Gender - Boy (ref: Girl)	-.349	.018	<0.001	.705	.681	.730
Disabled	-.342	.109	.002	.711	.574	.879
Special school (ref: Secondary)	-2.669	.717	<0.001	.069	.017	.282
% of school eligible for FSM	-.029	.001	<0.001	.971	.969	.974
Deprived area (ref: No)	-1.028	.020	<0.001	.358	.344	.372
Large urban area (ref: No)	.126	.020	<0.001	1.135	1.091	1.180
Constant	.922	.019	<0.001	2.514		

Base: All leavers

Source: SAPC 2007 (own calculations)