CHILDREN, EDUCATION AND SKILLS

# Scottish Survey of Literacy and Numeracy 2015 (Numeracy)

31st May 2016

We would like to thank the pupils and teachers who took part in SSLN 2015.

The Scottish Survey of Literacy and Numeracy (SSLN) is a sample survey which measures national performance in literacy and numeracy in alternate years. It is aligned to Curriculum for Excellence Levels. First Level (P2 to P4) performance is assessed near the end of P4 (age 8-9), Second Level (P5 to P7) performance is assessed near the end of P7 (age 11-12) and Third Level (S1 to S3) performance is assessed near the end of S2 (age 13-14).

Full results are available from www.gov.scot/ssln

Numeracy attainment – proportion of pupils performing well or very well in 2011, 2013 and 2015, by stage
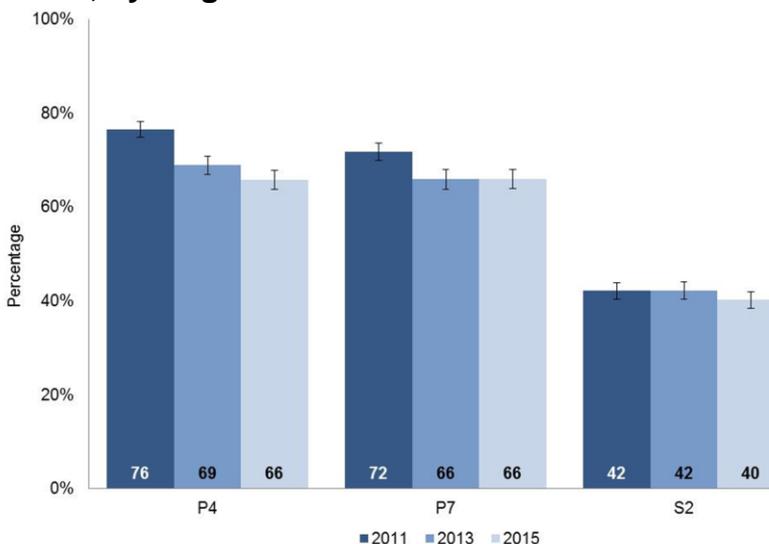
- The proportion of P4 pupils that performed well or very well decreased between 2011 and 2013, and again, slightly, between 2013 and 2015.

- At P7, performance stabilised between 2013 and 2015, after an initial fall between 2011 and 2013.

- S2 performance remained the same across all three survey years.

Numeracy attainment in 2015
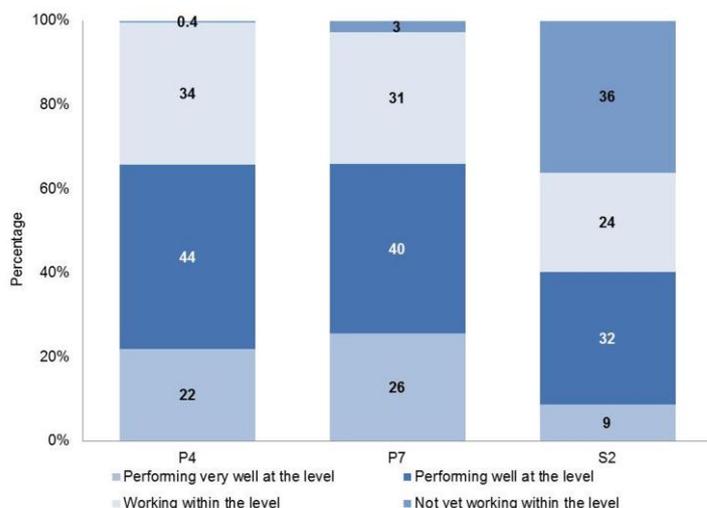
- Sixty-six per cent of P4 and P7 pupils performed well or very well in numeracy in 2015.

- Forty per cent of S2 pupils performed well or very well.

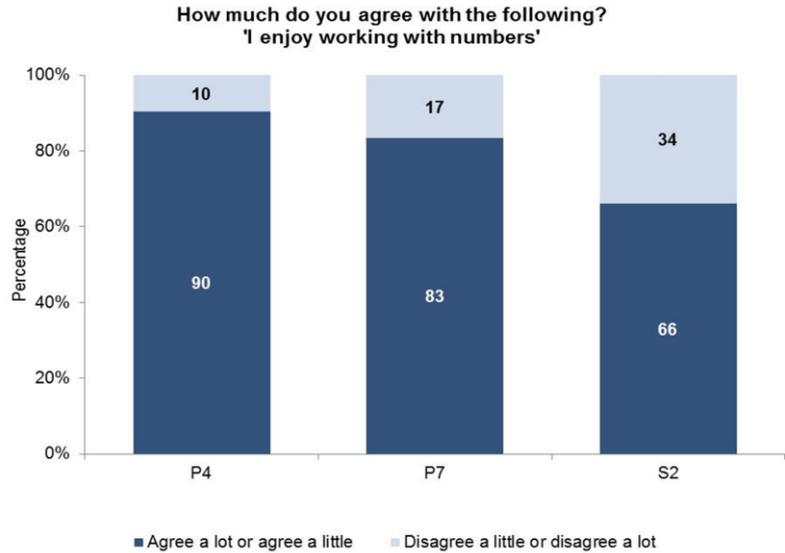- The largest proportion of pupils not yet working within the level was at S2 (36 per cent).

- Boys outperformed girls in numeracy at S2, whereas there was no difference in the proportion of boys and girls performing well or very well at either P4 or P7.

- Pupils from the least deprived areas outperformed more deprived pupils across all stages.

Numeracy attainment over time – gender and deprivation

- The performance of P4 and P7 girls and boys was the same in 2015 as in 2013, after an initial decrease between 2011 and 2013. This resulted in an overall decrease in performance for these groups between 2011 and 2015.

- There was a fall in the performance of S2 girls between 2013 and 2015, which led to an overall fall between 2011 and 2015. The performance of boys in S2 remained the same across all three years.

- Cumulative changes between 2011 and 2013 and between 2013 and 2015 meant that, between 2011 and 2015, numeracy performance decreased for the least deprived P4 pupils, and P4 and P7 pupils from the most deprived and middle categories. Performance of all other groups remained the same.

- Between 2011 and 2015, the performance gap between least and most deprived pupils increased at P4 and remained the same for P7 and S2 pupils.
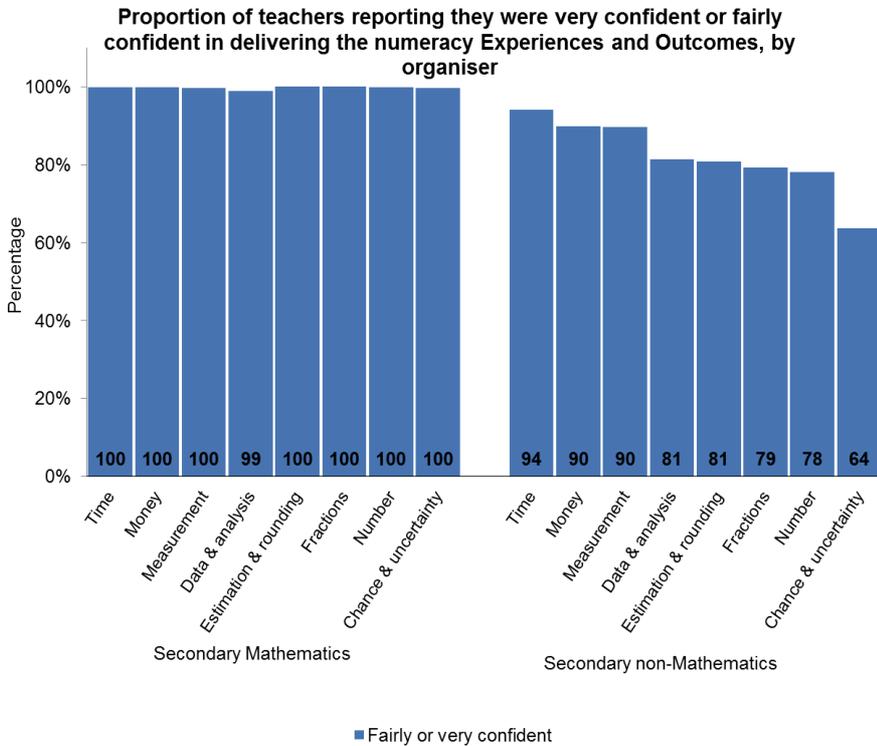
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Pupil questionnaire results

- Nearly all pupils in all stages agree that they want to do well in learning and over 80 per cent of pupils can see the usefulness of what they learn in school.

- There has been increased use of ICT in the classroom compared to 2013 and pupils report high levels of confidence in using computers/tablets to carry out research.

How much do you agree with the following?
'I enjoy working with numbers'

■ Agree a lot or agree a little　■ Disagree a little or disagree a lot

- At P4, nine out of ten pupils agreed they enjoyed working with numbers. In P7, this was over three quarters of all pupils and, at S2, two thirds of all pupils.

Teacher questionnaire results

Proportion of teachers reporting they were very confident or fairly confident in delivering the numeracy Experiences and Outcomes, by organiser

■ Fairly or very confident

- The vast majority of primary and secondary Mathematics teachers are confident in teaching numeracy; secondary non-Mathematics teachers reported relatively lower levels of confidence.

- Teachers reported that pupils often talk about what they are learning with their peers and that they also have opportunities to explain how they have solved a problem in their own words.

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Chapter 1: Introduction

1.1 What is the SSLN?

The Scottish Survey of Literacy and Numeracy (SSLN) is an annual sample survey which monitors national performance of school children at P4, P7 and S2 in literacy and numeracy in alternate years. The 2015 survey focused on numeracy. All mainstream publicly funded and independent schools are invited to participate in the SSLN. For more information on the survey design see Chapter 6: Background Notes.

The SSLN also provides information which informs improvements in learning, teaching and assessment at classroom level through the development of Professional Learning Resources (PLRs) by Education Scotland. All PLRs are available on the Education Scotland website.

The SSLN replaced the Scottish Survey of Achievement (SSA) which ran from 2004 to 2009. The SSLN was developed in 2009 to support assessment approaches for Curriculum for Excellence (CfE), and so results are not comparable with the SSA. The guidance for assessment for CfE is set out in Assessment for Curriculum for Excellence: Strategic vision and key principles, published in September 2009, and in Building the Curriculum 5: A Framework for Assessment and its supporting suite of publications, first published in January 2010.

The SSLN is undertaken in partnership between the Scottish Government, Education Scotland, the Scottish Qualifications Authority (SQA), the Association of Directors of Education in Scotland (ADES) and local authorities.

We would like to thank the 10,500 pupils and 4,700 teachers in the 2,200 schools who participated in SSLN 2015.

1.2 Survey components

The numeracy assessments consisted of two paper booklets, each lasting about an hour, and a pupil-teacher interactive assessment. Each booklet contained short answer tasks, consisting of a single question, and a multi-item (extended) task, which was based on a source datasheet with multiple associated questions. All questions were worth one mark each. The exact score composition of the assessments differed between the stages but overall around 60 per cent of marks were derived from short answer tasks. At P4, each booklet contained 16 short answer tasks and one multi-item task consisting of six questions. For P7 and S2 pupils, each booklet contained 20 short answer tasks and a multi-item task consisting of eight questions.

All pupils also completed a pupil-teacher interactive assessment, which consisted of 12 questions for all stages and was worth 12 marks. This assessment included questions on mental maths, an 'estimation and rounding' task and a task on one of 'money', 'measurement' or 'chance and uncertainty'.

The assessments used in the survey were designed to assess the wide range of knowledge, skills, capabilities and attitudes across learning identified in the numeracy experiences and outcomes. They were designed to reflect the requirements that pupils have achieved breadth, challenge and application of learning. The pupil questionnaire collected information on factors that are likely to affect learning, such as pupil attitudes and experience in class. The teacher questionnaire collected information on teachers' experiences of delivering numeracy across the curriculum.

Assessment tasks were either specifically developed for the SSLN by practising teachers and assessment experts or, where previous SSA tasks were used or revised, these were re-assessed against curriculum levels and experiences and outcomes. The assessments were constructed to include tasks with different degrees of challenge and across the range of numeracy organisers set out by the curriculum at each level.

Pupils were assessed at the following curriculum levels[1]:

P4: First Level (covers P2 to P4, but earlier or later for some)
P7: Second Level (covers P5 to P7, but earlier or later for some)
S2: Third Level (Third and Fourth level span S1 to S3, but earlier for some)

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[1] For definitions of the curriculum levels, please see the Education Scotland website.

1.3 Reporting SSLN results

SSLN results are presented by categories for ease of reporting. A summary of the categories used is given in Table 1.1. They refer to performance in the survey and are not meant to be used for general classroom reporting of performance.

Headline numeracy results are based on pupils performing well or very well at the level.

Table 1.1: Summary of SSLN reporting categories

Reporting Category	Pupils are:
Performing very well at the level	meeting almost all the outcomes at that level
Performing well at the level	meeting most of the outcomes at that level
Working within the level	meeting some of the expected outcomes for their level, but they are not yet meeting the others
Not yet working within the level	not yet meeting any of the CfE outcomes of the level assessed

In contrast to the SSA, the SSLN does not assess pupils against other levels. For example, although pupils in P4 may be reported as 'performing very well at First Level', it is possible that some may be achieving many of the Second Level outcomes as well; however, the SSLN does not capture this information. The principles of CfE are clear, however, that the curriculum levels are not a barrier to pupils' progression in learning. In progressing through a level pupils must demonstrate breadth and depth of learning and be able to apply their learning in different and unfamiliar contexts.

There are three deprivation categories reported in the SSLN: the least deprived 30 per cent of datazones, the middle 40 per cent and the most deprived 30 per cent. These are based on the Scottish Index of Multiple Deprivation (SIMD) 2012 and pupils are assigned to a category according to their home postcode.

The SSLN samples a proportion of pupils rather than the whole population, therefore the SSLN results are presented as estimates. There is an element of uncertainty around the estimates and these are denoted by confidence intervals. Where appropriate, confidence intervals are represented on charts by error bars to help demonstrate this level of uncertainty. Statistical tests were used to test for differences between estimates. All references to differences in this report are statistically significant differences. For more information on calculation and interpretation of confidence intervals please see Chapter 6: Background notes.

All SSLN estimates in this report are rounded to zero decimal places. Differences in estimates are calculated using unrounded estimates, therefore apparent differences may differ from actual calculated differences.

Chapter 2: Assessment of numeracy

- **Numeracy performance was highest at P4 and P7 with 66 per cent of pupils at each stage performing well or very well. At S2, 40 per cent of pupils performed well or very well.**

- **Boys outperformed girls at S2. At P4 and P7, there was no difference in performance of boys compared to girls.**

- **Pupils from the least deprived areas performed better in numeracy than other pupils, across all stages.**

Figure 1 provides an illustration of a question taken from one of the Second Level pupil-teacher interactive assessments which focuses on the 'measurement' organiser. The figure contains the data sheet and accompanying questions.

Figure 1: Example of a Second Level (P7) practical assessment

ANYONE FOR TENNIS?

[Show tennis ball prompt card.]

The volume of a tennis ball is 140cm³. You can fit exactly six tennis balls into a tube.

[Indicate tube and balls on prompt card.]

1. How would you estimate the volume of the tube?

[If pupil has not identified a correct strategy, suggest it to them now.]

2. Can you work out the volume for me now? [Allow jottings.]

3a. If I estimate the volume of the tube by finding the volume of 6 tennis balls, is the estimate likely to be too big, too small or exactly correct?

3b. Can you explain why you think so?

ANYONE FOR TENNIS?

Volume of One Tennis Ball

140 cm³

Volume of a Cylinder

Estimate:

What is the volume of the cylinder?

Figure 2 provides an illustration of a short answer task taken from one of the Third Level written numeracy booklets. This task focuses on the 'money' organiser.

Figure 2: Example of a Third Level (S2) question from a written numeracy booklet.

Fiona's annual electricity bill is £400.
A wind turbine would reduce this bill by 25%.
The turbine costs £2000 to install.

From the savings she makes, how many years would it take her to pay for the cost of the wind turbine?

Answer: _____ years

The following analysis is taken from the results of pupils completing all three elements of the assessment (two written booklets and one pupil-teacher interaction). Effective sample sizes on this basis were 3,381 pupils in P4, 3,368 in P7 and 3,737 in S2. Results were weighted to account for different school sizes, a small number of non-participating schools and gender and deprivation differences between the sample and the population.

Pupils were assigned to one of four reporting categories based on the percentage of questions they answer correctly. Table 2.1 describes the categories used for each performance level in the numeracy assessment. These cut-off scores were set in consultation with Education Scotland, SQA and teachers, based on professional judgement and an analysis of the tasks involved in the assessment.

Table 2.1 Cut-off scores for SSLN numeracy reporting categories

SSLN numeracy reporting category	Percentage of items successfully completed in the SSLN
Performing very well at the level	75 per cent or more
Performing well at the level	50 per cent or more, but less than 75 per cent
Working within the level	P4: more than 9 per cent, but less than 50 per cent P7: more than 19 per cent, but less than 50 per cent S2: more than 34 per cent, but less than 50 per cent
Not yet working within the level	P4: 9 per cent or less P7: 19 per cent or less S2: 34 per cent or less

For example, pupils answering 75 per cent or more questions correctly across all tasks are described as 'performing very well at the level'. As the assessments are designed to cover the full range of outcomes within the curriculum at a given level, such a pupil might be

expected, in general, to achieve at least 75 per cent across all tasks at their level. Pupils described as 'working within' a level can achieve some of the outcomes expected for their stage, but are still working on achieving the others.

For each stage, the differing cut-off scores between 'working within the level' and 'not yet working within the level' were determined by assessing the number of marks that could potentially be obtained in the assessment using only skills acquired at the previous level or, in the case of multiple choice items, by chance.

2.1 Overall distribution

Chart 2.1 displays the proportions of P4, P7 and S2 pupils in each reporting category (as defined in section 1.3).

Chart 2.1: Performance in numeracy, by stage and reporting category
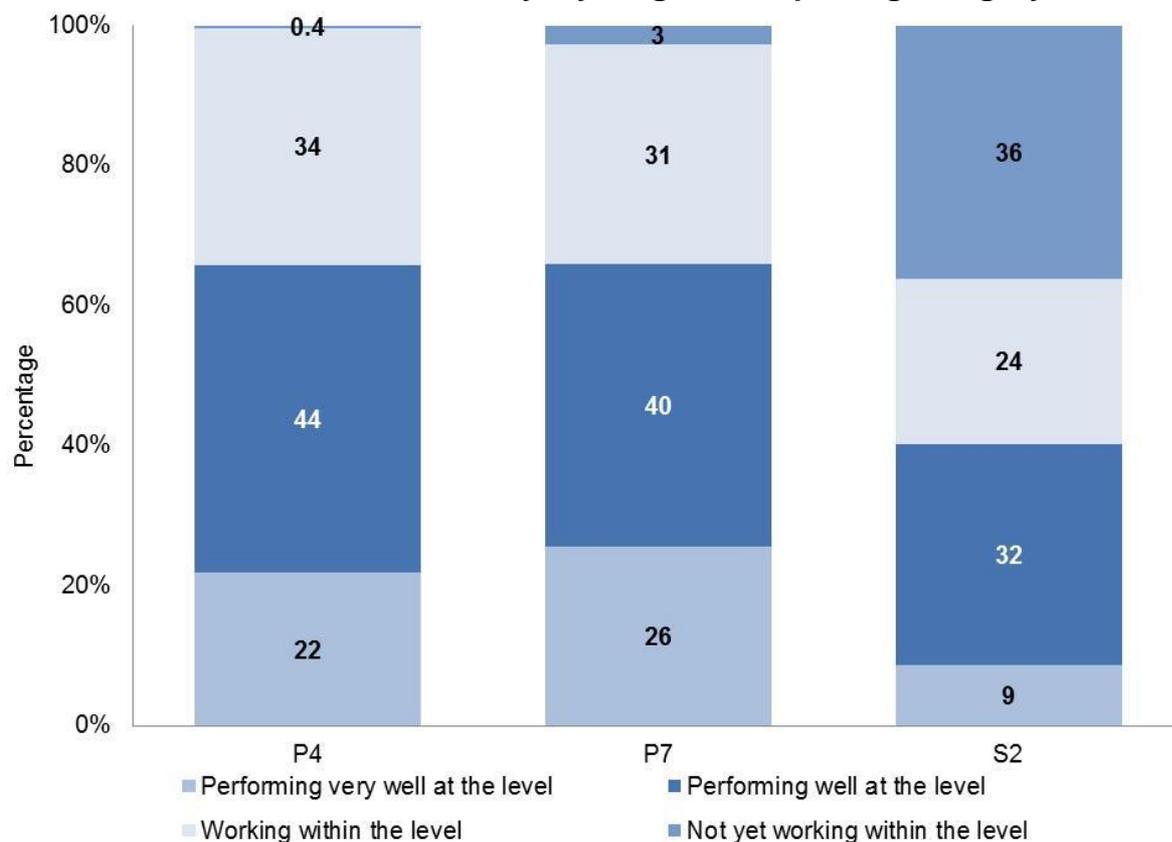
At P4 and P7, 66 per cent of pupils performed well or very well when assessed against the relevant curriculum level for their stage (as defined in section 1.3). At S2, 40 per cent of pupils performed well or very well.

Though P4 and P7 saw the same proportion of pupils performing well or very well overall, P7 had the highest percentage of pupils performing at the highest level, with 26 per cent performing very well in numeracy (22 per cent of P4 pupils).

The proportion of pupils not yet working within the level was greatest for S2 pupils at 36 per cent, higher than in the primary sector where there was less than one per cent of P4 pupils and three per cent of P7 pupils not yet working within the level.

The difference in performance between the primary stages and S2, as highlighted in these results, is consistent with other educational evidence. A drop in performance associated with the transition from late primary and early secondary has been documented previously in the education sector, both in Scotland and elsewhere. This is apparent in the latest P7 and S2 results. Whilst there are only two years of schooling between these stages, the results show a substantially lower proportion of pupils working well or very well at the respective level by S2, though it should be noted that pupils are expected to reach Third Level (the level at which S2 pupils are assessed) by the end of S3, rather than S2.

Chart 2.2 shows the distribution of scores for each of the three stages assessed. The chart shows that the peak in P4 scores was around a score of 60-69 per cent (20 per cent of pupils achieved this score). The distribution of P7 scores was similar with a peak at 70-79 per cent (18 per cent of pupils). The pattern of S2 scores was flatter, concentrated around a score of 20-59 per cent, with a slight peak at 30-39 per cent.

Chart 2.2 Distribution of scores in each stage
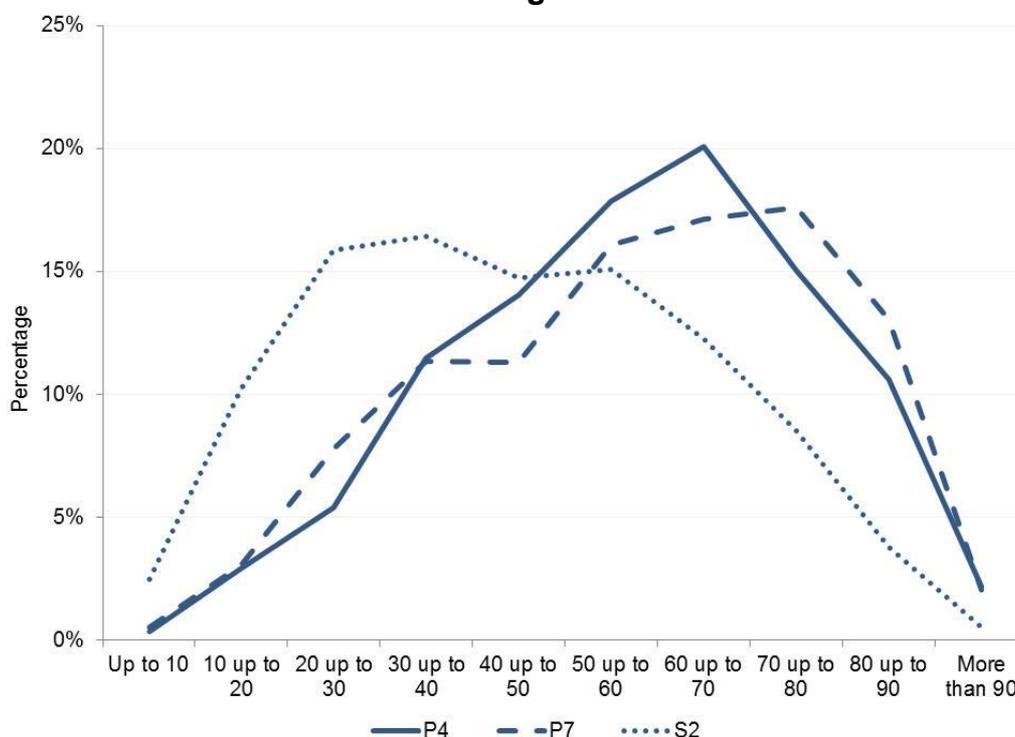

In line with the assessment results, primary pupils reportedly also have a slightly higher perception of their numeracy ability, as shown by the SSLN pupil questionnaire results. Pupils in all stages were asked if they 'usually do well working with numbers': 93 and 90 per cent of P4 and P7 pupils agreed with the statement respectively, whereas in S2 this was 83 per cent.

2.2 Attainment by gender

Boys outperformed girls in numeracy at S2, with the proportion of boys performing well or very well five percentage points higher than that of girls. The differences in the proportions of girls and boys who performed well or very well were not statistically significant at P4 or P7.

Chart 2.3 Proportion of pupils performing well or very well in numeracy, by stage and gender
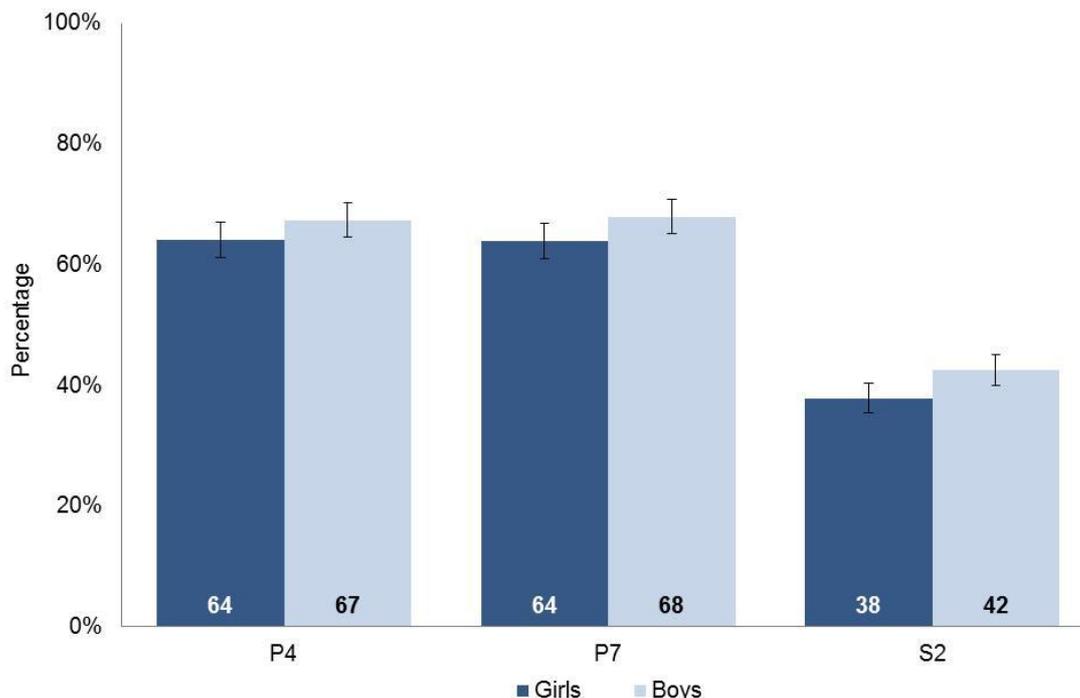
The difference observed in pupil performance between the primary stages and S2 is also evident in the results for both girls and boys. This suggests both genders may be affected by the challenge of transition from primary to secondary.

A differential in numeracy ability between boys and girls is also observed in the OECD's Programme for International Student Assessment (PISA) results. PISA surveys 15 year olds (generally S4 pupils). Results from the most recent surveys, 2009 and 2012, found that boys performed statistically significantly better than girls in the Mathematics assessment.

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2.3 Attainment by deprivation

The proportion of pupils who performed well or very well was higher for pupils from the least deprived areas than pupils from the middle and most deprived areas, across all stages.

Chart 2.4 shows the difference in performance by deprivation category. Across all stages the proportion of pupils who performed well or very well increased through the deprivation categories (from most, to middle to least). This results in a stepped pattern where performance improves as level of deprivation declines.

The performance gap (the difference between the proportion of pupils from the least and most deprived areas performing well or very well) in the primary stages was 21 and 22 percentage points (P4 and P7 respectively), whereas the largest gap was at S2 at 28 percentage points.
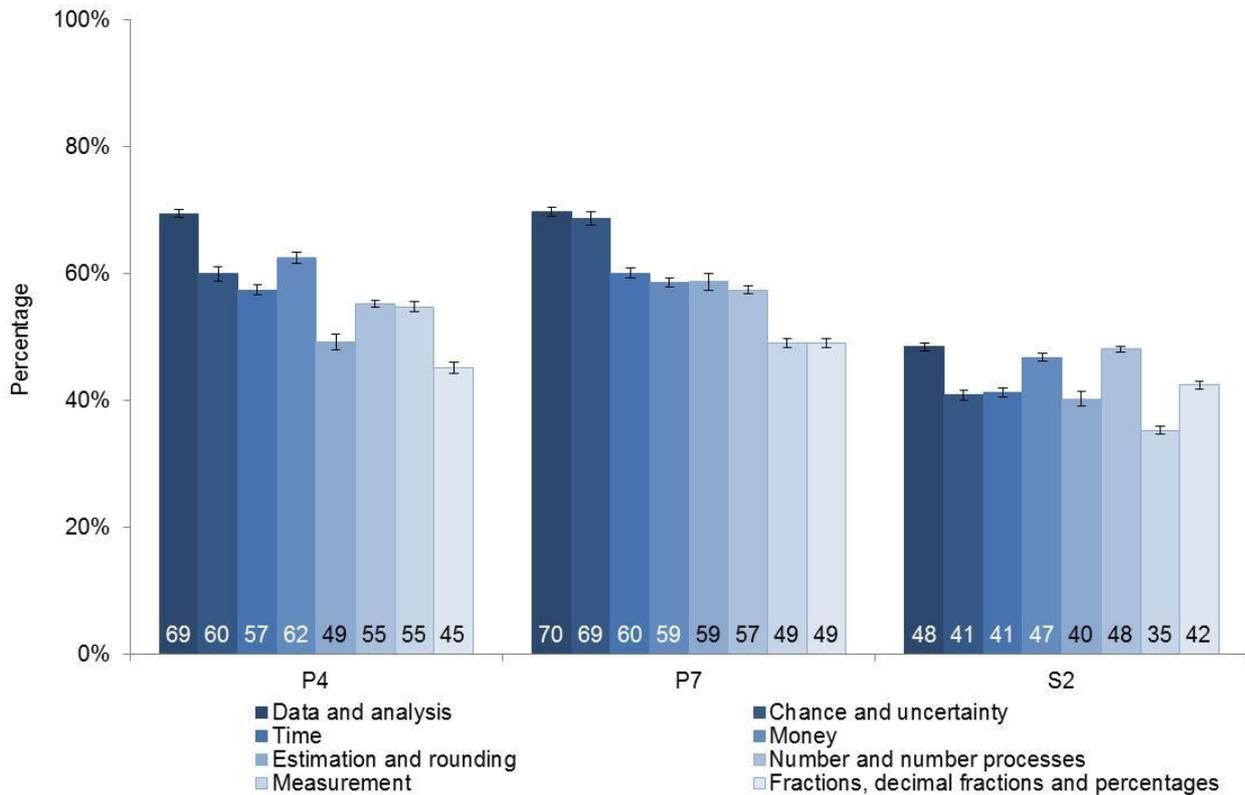
Chart 2.4 Proportion of pupils performing well or very well in numeracy, by stage and deprivation category
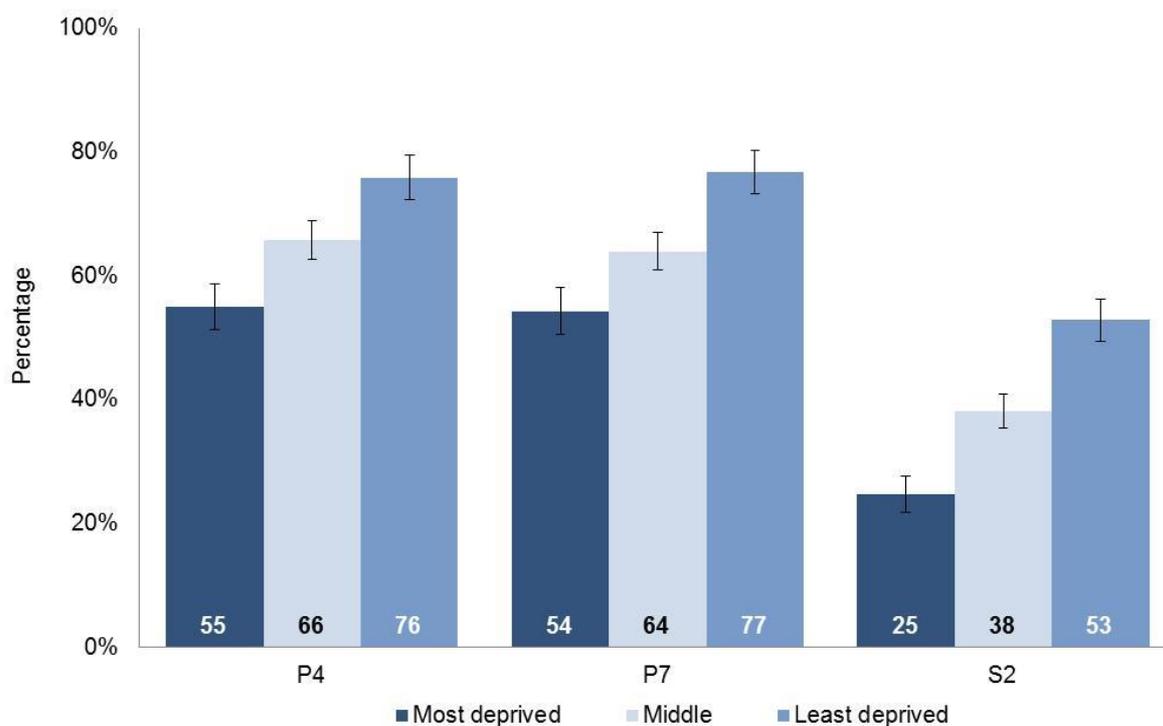
## 2.4 Attainment by numeracy organiser and type of task

The SSLN questions are categorised in line with the CfE experiences and outcomes for numeracy e.g. 'measurement', 'time' etc. For all stages the highest proportion of questions answered correctly were 'data and analysis' questions (and jointly, at S2, 'number and number processes' questions) (Chart 2.5). The questions pupils found most challenging were questions on 'fractions, decimal fractions and percentages' (P4 and P7) and 'measurement' (P7 and S2). In line with the overall attainment results, the performance at S2 was lower across all organisers than at the primary stages.

Chart 2.5 Proportion of correctly answered questions, by stage and organiser

Legend:
- Data and analysis
- Time
- Estimation and rounding
- Measurement
- Chance and uncertainty
- Money
- Number and number processes
- Fractions, decimal fractions and percentages

Stage	Data and analysis	Time	Estimation and rounding	Measurement	Chance and uncertainty	Money	Number and number processes	Fractions, decimal fractions and percentages
P4	69	60	57	62	49	55	55	45
P7	70	69	60	59	59	57	49	49
S2	48	41	41	47	40	48	35	42

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The numeracy assessment consists of three task types: short answer, multi-item and pupil-teacher interaction tasks (as described in section 1.2). Pupils in P4 performed better at multi-item tasks, with 64 per cent of these tasks answered correctly (Chart 2.6); P7 pupils were most successful in pupil-teacher interaction tasks (64 per cent correct). For S2 both multi-item tasks and pupil-teacher interaction tasks had the highest proportion of correct answers at 47 per cent. At all stages, pupils performed least well on short answer tasks.

Chart 2.6 Proportion of tasks answered correctly, by stage and task type
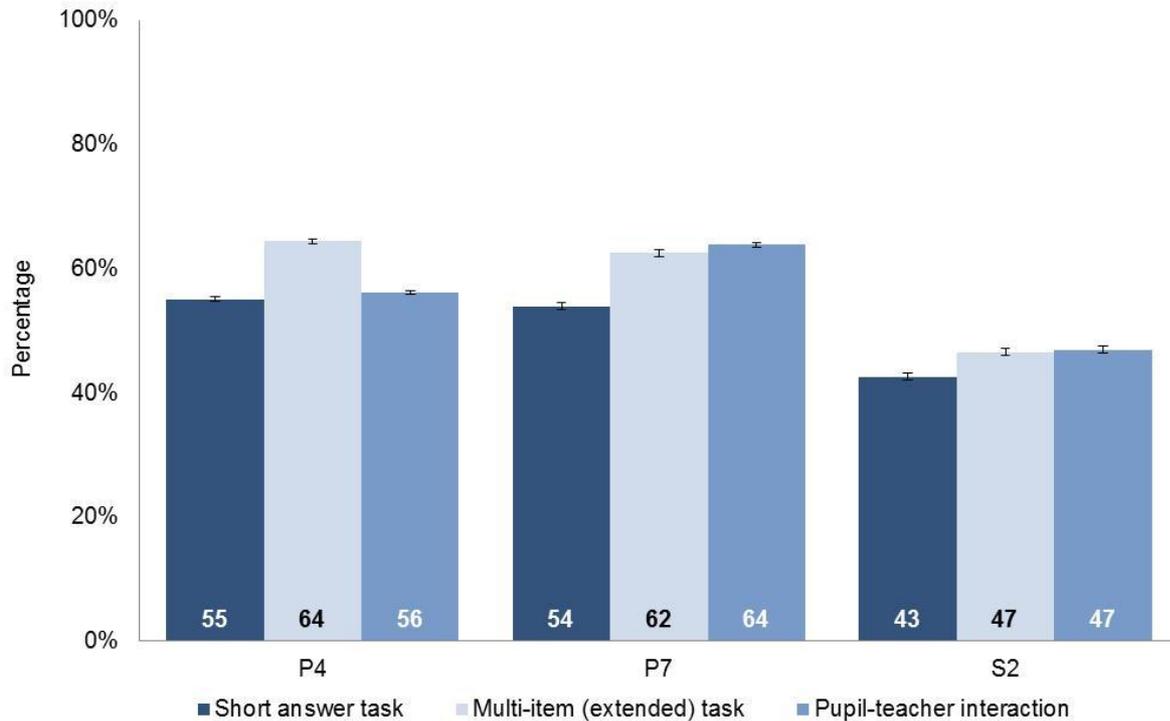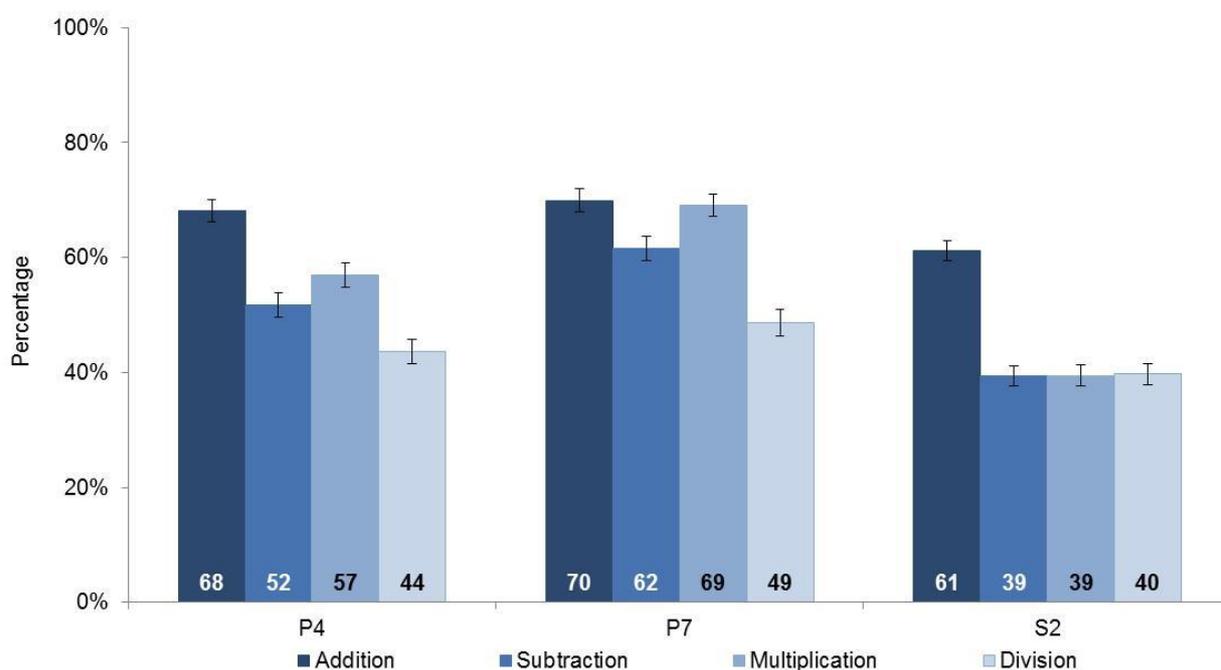
2.5 Mental maths

The first section of the pupil-teacher interaction assessment included four mental maths questions covering each of the four numeracy operators: addition, subtraction, multiplication and division. Two questions were written on prompt cards for the pupils to see, the remaining two questions were read out to the pupil by the teacher.

At all stages, the percentage of correct answers was highest for mental maths questions where the operator was addition, with 68 per cent (P4), 70 per cent (P7) and 61 per cent (S2) of addition questions answered correctly (Chart 2.7). Multiplication questions were also well answered by P7 pupils, with 69 per cent of these questions answered correctly.

Chart 2.7 Proportion of mental maths questions answered correctly, by stage and numeracy operator

In the primary sector, mental maths questions based on division saw the lowest proportion of correct answers, at 44 and 49 per cent (P4 and P7 respectively). In S2, there was not the variability between the non-addition questions as there was in the primary sector. As shown in Chart 2.7, the percentage of non-addition questions answered correctly was around 40 per cent.

Chapter 3: Numeracy attainment over time

- **The proportion of P4 pupils performing well or very well decreased between 2011 and 2013, and again slightly between 2013 and 2015.**

- **The proportion of P7 pupils performing well or very well decreased between 2011 and 2013 but remained constant between 2013 and 2015.**

- **The proportion of S2 pupils performing well or very well remained stable between 2011, 2013 and 2015.**

A key objective of the SSLN is to monitor numeracy attainment over time at P4, P7 and S2. This chapter details the methodology used to assess numeracy attainment over time (2011, 2013 and 2015) and provides the trends in performance for the key measures from the survey.

3.1 Methodology

All analysis is based on the results of pupils who completed all three elements of assessment (two written booklets and the pupil-teacher interactive assessment). The effective sample size was 11,238 pupils for the 2011 survey, 10,561 pupils for the 2013 survey and 10,486 pupils for the 2015 survey (3,381 in P4, 3,368 in P7 and 3,737 in S2).

The SSLN design allows for a level of item release and replacement in order to provide examples of the tasks pupils are asked to undertake. They are included, for example, in this statistical report and in Education Scotland's PLRs. Therefore there are a proportion of assessment booklets that were not consistent between 2011, 2013 and 2015.

In order to check the item release and replacement strategy did not have an adverse effect on the ability to make comparisons, results were produced on two bases; firstly on all assessment booklets and secondly excluding booklets which had been released or replaced between cycles. A series of in-year and between year comparisons showed that excluding released and replacement booklets did not affect the overall picture of pupil performance and therefore that results across survey years are directly comparable.

Time series data in this report and the supplementary tables are based on an analysis of all booklets in each survey year. Statistical tests were used to test for significant differences in performance:

- between 2011 and 2013;
- between 2013 and 2015;
- between 2011 and 2015.

3.2 Overall distribution

Chart 3.1 shows the proportion of pupils who performed well or very well at the relevant level in 2011, 2013 and 2015. The overall pattern shown in the 2015 data was similar to the previous two years, with performance at primary higher than in secondary.

Chart 3.1: Proportion of pupils performing well or very well in numeracy in 2011, 2013 and 2015, by stage
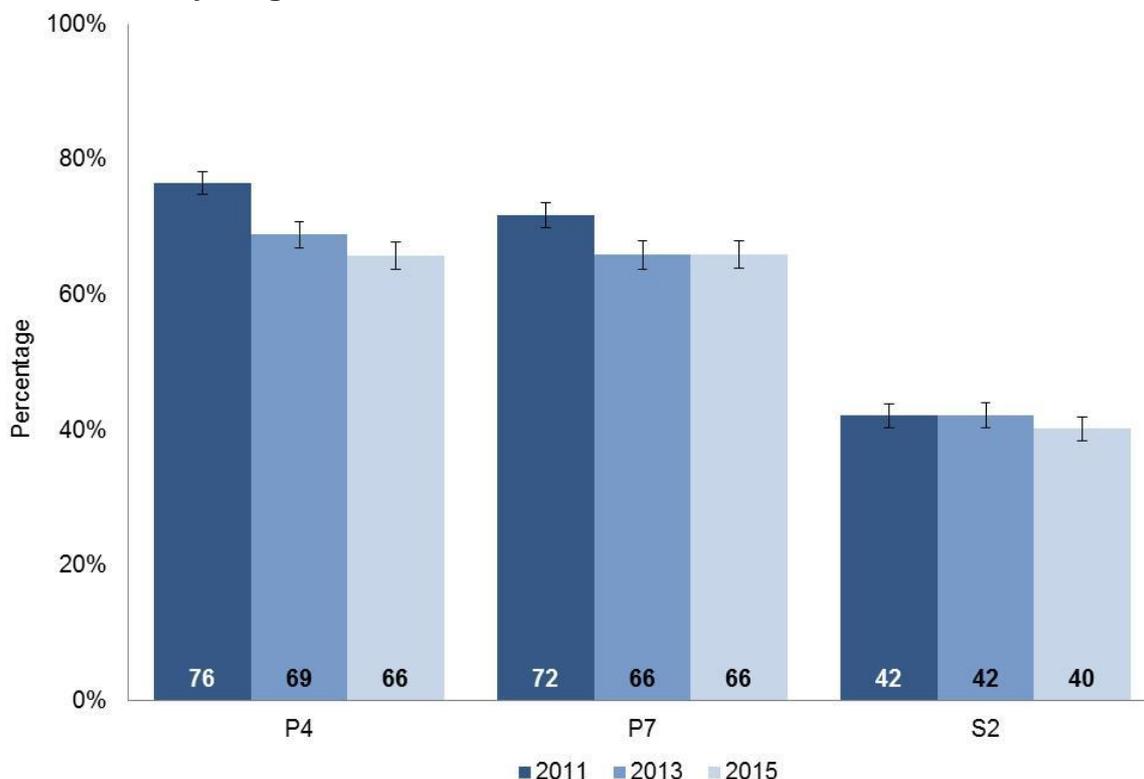
The time series trend varies between stages, Table 3.1 shows which changes over time are statistically significant:

Table 3.1: Difference in proportion of pupils performing well or very well in 2011, 2013 and 2015, by stage

Stage	2011 to 2013	2013 to 2015	2011 to 2015
P4	Lower in 2013	Lower in 2015	Lower in 2015
P7	Lower in 2013	No difference	Lower in 2015
S2	No difference	No difference	No difference

The proportion of P4 pupils performing well or very well has reduced between each survey, however the rate of decline has slowed. The difference in the proportion of pupils performing well or very well between 2011 and 2013 and between 2013 and 2015 was eight and three percentage points, respectively, culminating in an overall reduction of 11 percentage points between 2011 and 2015. The decrease between 2013 to 2015 was solely due to a decrease in the proportion of pupils performing well, the proportion performing very well remained the same.

At P7, there was a decrease between 2011 and 2013 (six percentage points) but there was no difference between 2013 and 2015, with the proportion of pupils performing well or

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very well remaining the same at 66 per cent. The overall change between 2011 and 2015, therefore, was a decrease of six percentage points.

The proportion of pupils performing well or very well at S2 has remained the same (statistically similar) across the three surveys.

With respect to the proportion of pupils not yet working within the level, the proportions, and changes in proportions between 2011 and 2015, varied greatly between stages. There was no increase at P4 (negligible in all years) and a small increase at P7 from two percentage points to three percentage points. The largest increase was at S2 where the proportion of pupils not yet working within the level increased from 32 per cent to 36 per cent.

3.3 Attainment by gender

The pattern of performance by gender over time varied between stages, with only some changes in performance being statistically significant. These changes are displayed in Table 3.2.

Table 3.2: Difference in proportion of pupils performing well or very well in 2011, 2013 and 2015, by stage and gender
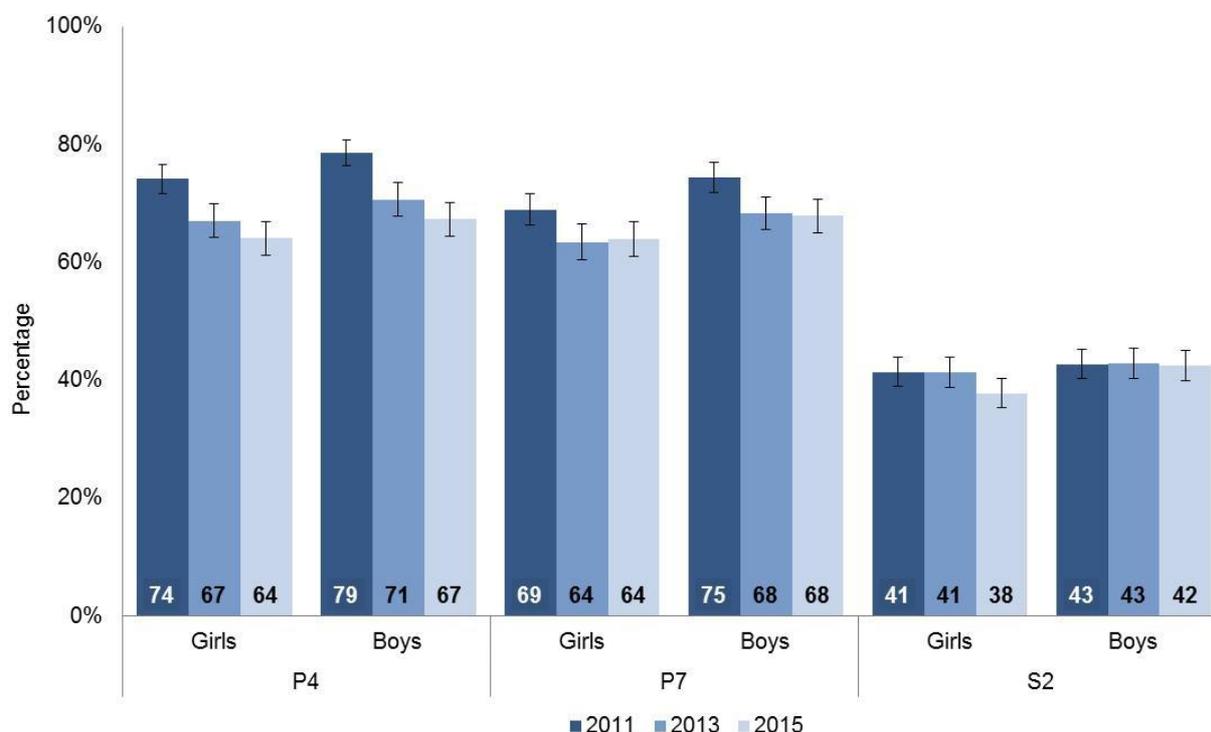
<u>Girls</u>

Stage	2011 to 2013	2013 to 2015	2011 to 2015
P4	Lower in 2013	No difference	Lower in 2015
P7	Lower in 2013	No difference	Lower in 2015
S2	No difference	Lower in 2015	Lower in 2015

<u>Boys</u>

Stage	2011 to 2013	2013 to 2015	2011 to 2015
P4	Lower in 2013	No difference	Lower in 2015
P7	Lower in 2013	No difference	Lower in 2015
S2	No difference	No difference	No difference

Chart 3.2: Proportion of pupils performing well or very well in numeracy in 2011, 2013 and 2015, by stage and gender

At P4 and P7, there was a decrease in the proportion of girls and boys performing well or very well between 2011 and 2013, with no statistically significant change between 2013 and 2015. The decrease in performance observed between 2011 and 2015 is due the changes between 2011 to 2013 only.

There has been no change to the proportion of S2 boys performing well or very well over the three years as shown in Chart 3.2. The S2 girls' performance has remained the same at 41 per cent in 2011 and 2013, before decreasing to 38 per cent in 2015.

It is worth noting that in 2013 boys outperformed girls at P7 only, whereas in 2015 boys outperformed girls at S2 only i.e. the gender gap in numeracy performance for the same cohort of pupils (P7 in 2013 and S2 in 2015) still exists.

3.4 Attainment by deprivation

The pattern of performance by deprivation over time is stable, in that a performance gap continues to exist across all stages.

Changes in performance of pupils within each deprivation category varied between stages, with only some changes in performance being statistically significant between the three surveys. These changes are displayed in Table 3.3.

Table 3.3: Difference in proportion of pupils performing well or very well in 2011, 2013 and 2015, by stage and deprivation

Least deprived category (pupils from the least deprived 30% of datazones)

Stage	2011 to 2013	2013 to 2015	2011 to 2015
P4	Lower in 2013	No difference	Lower in 2015
P7	No difference	No difference	No difference
S2	No difference	No difference	No difference

Middle deprivation category (pupils from the middle 40% of datazones)

| Stage	2011 to 2013	2013 to 2015	2011 to 2015
P4	Lower in 2013	Lower in 2015	Lower in 2015
P7	Lower in 2013	No difference	Lower in 2015
S2	No difference	No difference	No difference

Most deprived category (pupils from the most deprived 30% of datazones)

Stage	2011 to 2013	2013 to 2015	2011 to 2015
P4	Lower in 2013	Lower in 2015	Lower in 2015
P7	Lower in 2013	No difference	Lower in 2015
S2	No difference	No difference	No difference

Between 2013 and 2015, the only groups of pupils where there was a change in performance was P4 pupils from most deprived areas and from the middle category, where performance was lower in 2015 than in 2013. Performance was stable for all other groups.

As the proportion of P4 pupils who performed well or very well decreased for both least deprived and most deprived pupils between 2011 and 2013, the performance gap between least and most deprived pupils remained statistically similar (13 and 14 percentage points respectively). The performance gap between least and most deprived pupils again is not statistically significantly different between 2013 and 2015 (14 and 21 percentage points respectively). However the cumulative change in the performance gap between 2011 and 2015 meant that the gap was found to be statistically significantly larger in 2015 than in 2011. (Chart 3.3)

Chart 3.3: Proportion of P4 pupils performing well or very well in numeracy for 2011, 2013 and 2015, by stage and deprivation category
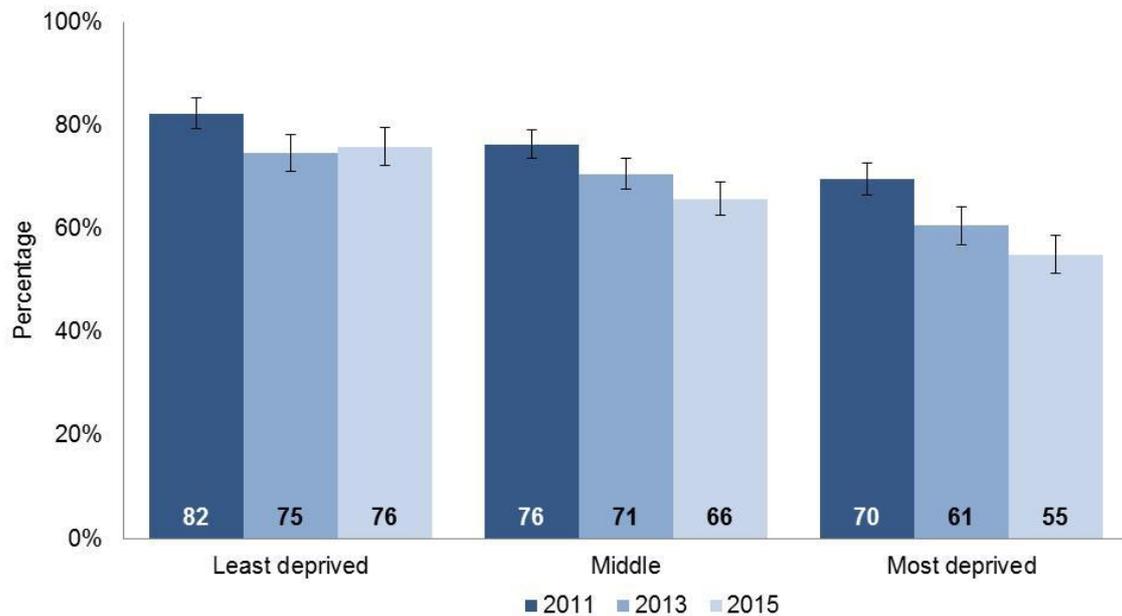
At P7, performance by deprivation category was stable between 2013 and 2015. The reductions in performance of pupils from the most and middle deprived categories between 2011 and 2013 caused reductions in these categories between 2011 and 2015 overall: from 74 to 64 percent (middle deprivation category) and from 61 to 54 per cent (most deprived). (Chart 3.4)

Chart 3.4: Proportion of P7 pupils performing well or very well in numeracy for 2011, 2013 and 2015, by stage and deprivation category
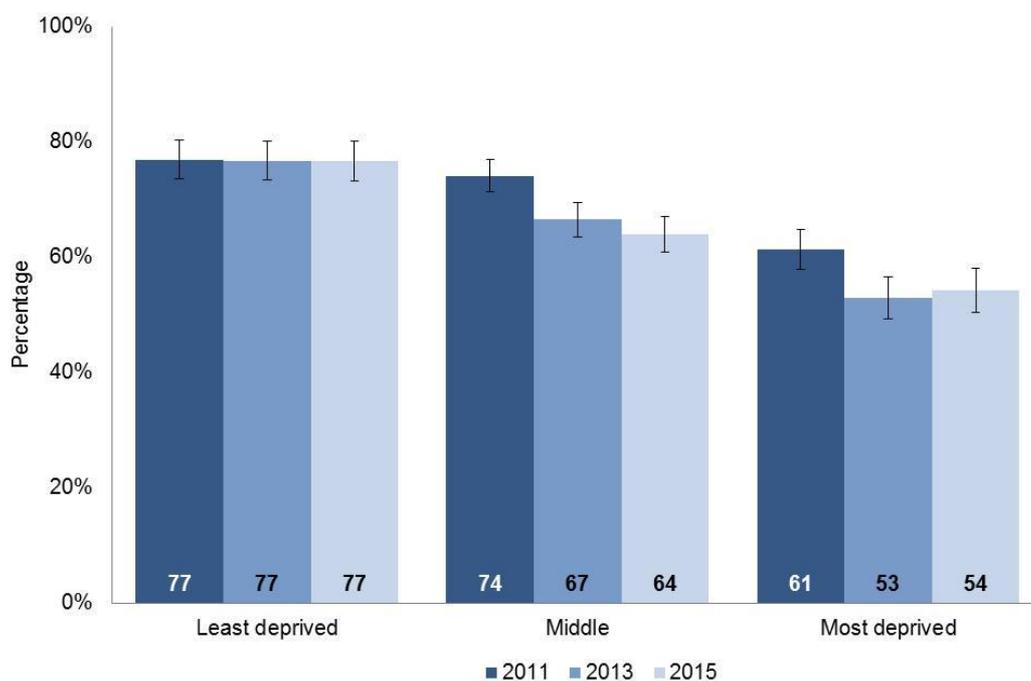
While the P7 performance gap increased between 2011 and 2013 (from 16 to 24 percentage points), there was no change between 2013 and 2015 (24 and 22 percentage points respectively).

At S2, there were no statistically significant changes in performance when disaggregated by deprivation category, at any point between 2011 and 2015. Similarly there was no difference in the performance gap between these three years staying constant at 28 percentage points. (Chart 3.5)

Chart 3.5: Proportion of S2 pupils performing well or very well in numeracy for 2011, 2013 and 2015, by stage and deprivation category
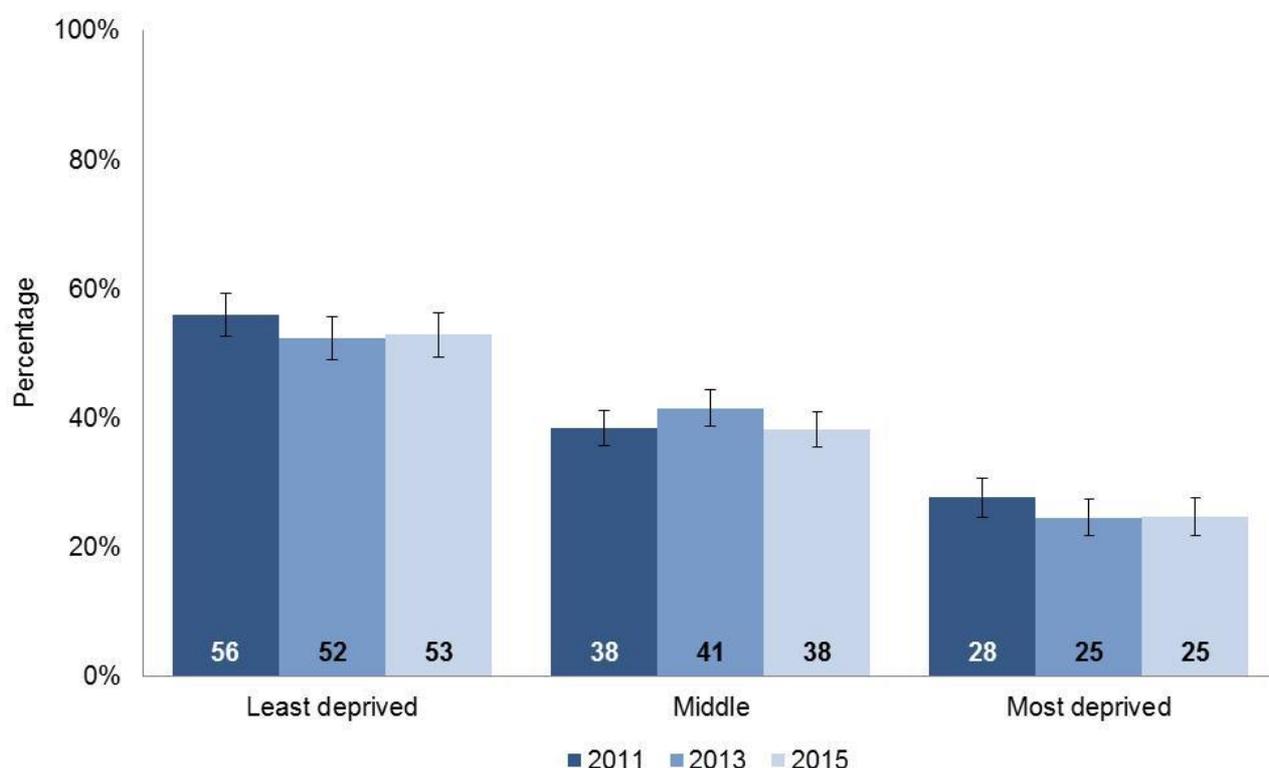
3.5 Attainment by numeracy organiser

Attainment in P4 was lower across all organisers in 2013 compared to 2011, with the exception of 'chance and uncertainty'. Between 2013 and 2015, however, the picture is mixed, with no statistically significant changes in performance in five of the organisers and small reductions in three ('number and number processes', 'money' and 'time').

At P7, six out of the eight organisers saw lower performance in 2013 than in 2011, whereas between 2013 and 2015 performance had stabilised across all organisers apart from 'time' (a reduction of one percentage point).

At S2, the picture was more varied. Over the period 2011 to 2015 performance was slightly lower for four organisers, stable for three and marginally higher (one percentage point) for one organiser ('fractions, decimal fractions and percentages').

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Chapter 4: Pupil questionnaire

- **Pupils are generally motivated to learn and to do well at school: nearly all pupils in all stages agree that they want to do well in learning and over 80 per cent of pupils can see the usefulness of their learning outside the context of school.**

- **There has been increased use of ICT in the classroom compared to 2013 and pupils report high levels of confidence in using computers/tablets to carry out research.**

- **Enjoyment of numeracy is high in primary but lower at S2: in P4, nine out of ten pupils agreed they enjoyed working with numbers. In P7, this was over three quarters of all pupils and, at S2, two thirds of all pupils.**

All pupils participating in the SSLN were asked to complete a questionnaire which focused on factors that are likely to affect learning, such as pupil attitudes and experiences in class. It should be noted that: 'don't know' responses were removed prior to analysis unless otherwise stated; and where 'agreed' is used this refers to pupils who responded either 'agree a lot' or 'agree a little'.

4.1 Activities in school

Pupils were asked how often they participated in a range of activities in their class. Across all stages, the activities in which the highest percentage of pupils reported they participated very often were 'listen to the teacher talk to the class about a topic' (64, 68 and 66 per cent in P4, P7 and S2 respectively) and 'work on your own' (58, 56 and 59 per cent in P4, P7 and S2). A high percentage of pupils in P7 (64 per cent) also reported that they 'discussed what they were learning' very often.

There was an increase in the percentage of S2 pupils reporting that they use computers at school very often, between the 2013 and 2015 surveys (from 21 per cent in 2013 to 24 per cent in 2015). This follows an increase from 14 per cent in 2011. Meanwhile, the same question for P4 and P7 shows a return to levels similar to 2011 having fallen between 2011 and 2013 (from 34 per cent in 2011 to 24 per cent in 2013 to 30 per cent in 2015 for P4, and similarly 38 per cent, 31 per cent and 37 per cent for P7).

Pupils were also asked about their teachers' practices. The most commonly reported teaching practices being undertaken very often were 'tell you what you are going to learn before you start' (82, 89 and 76 per cent in P4, P7 and S2 respectively) and 'encourage you to work hard' (68, 85 and 65 per cent in P4, P7 and S2 respectively). Over three quarters of P7 pupils reported that their teacher helps them to understand how they can do better very often. Similar proportions of P4 and S2 pupils reported that teachers go too slowly as too fast – around 11 per cent did this very often in each case in P4 and around 14 per cent in S2. In P7, almost double the proportion of pupils reported teachers going through work too slowly (13 per cent) than too fast (seven per cent).

Pupils were also asked how often someone in school talked with them about their learning, Chart 4.1 illustrates the results. Around a third of pupils in the primary stages reported that

they received feedback on performance and improvement very often, but this reduced to a fifth in S2.

Chart 4.1: How often does someone in school talk with you about:
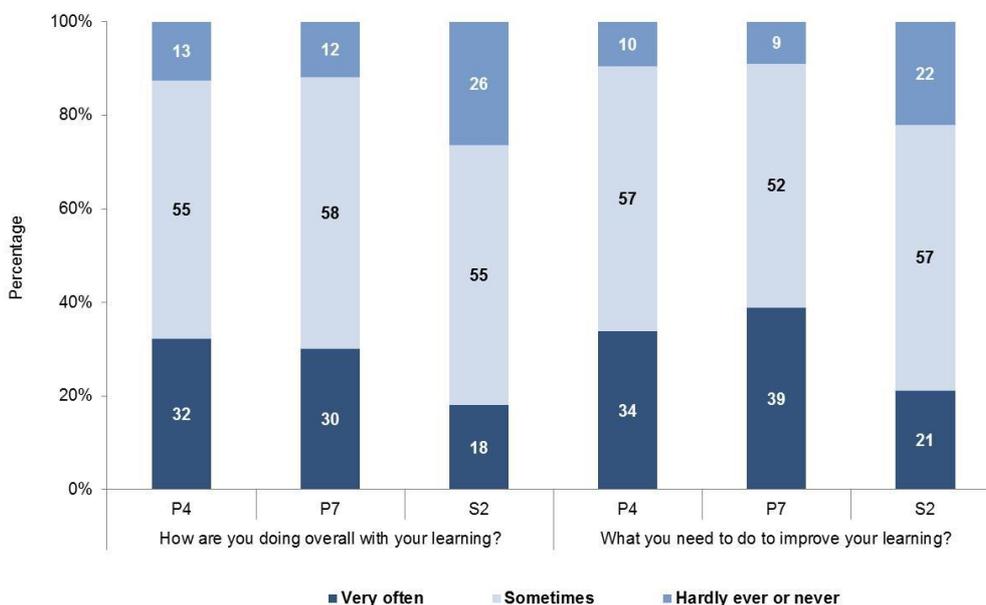
4.2 Attitudes to learning and numeracy

Pupils were asked a series of questions about their attitude towards learning in general, including how much they enjoy it, how useful they think it is, and whether they think they are good at learning. Chart 4.2 illustrates the answers to these three questions.

**Chart 4.2: How much do you agree with the following?**
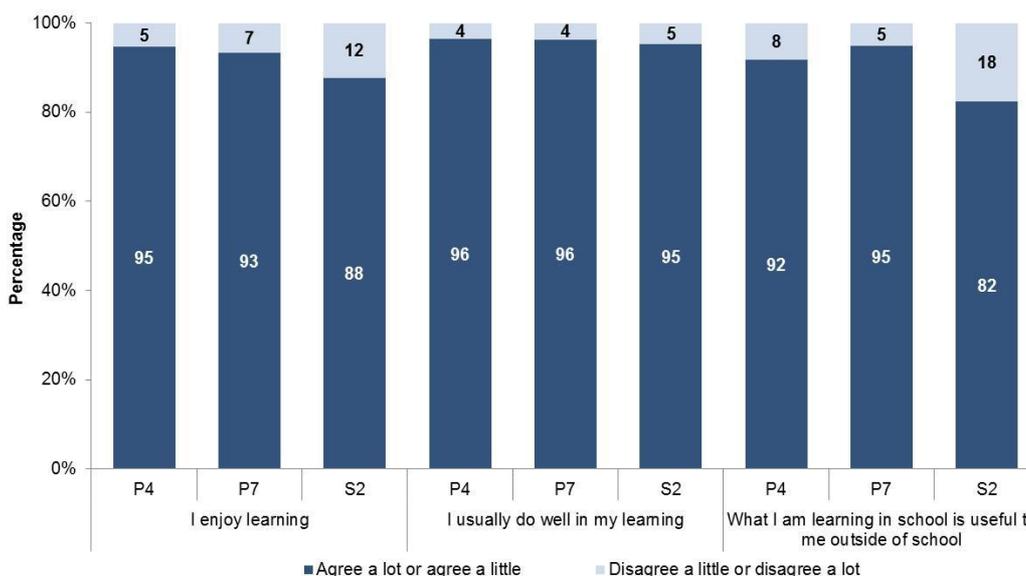
Enjoyment of learning was high throughout the survey stages, though the strength of this agreement reduced slightly at S2. The proportion of pupils reporting that they usually did well remained steady, with over 95 per cent of pupils at each stage agreeing either a lot or a little. Sixty per cent of pupils in P4, 64 per cent in P7 and 37 per cent of S2 pupils

strongly agreed that what they are learning in school is useful to them outside of school. This rises to over 90 per cent for both primary and 80 per cent for S2 stages when including pupils who also agreed a little.

Almost all pupils at all stages agreed with the statements 'I want to do well in my learning' (97 per cent in P4 and S2 and 98 per cent in P7) and 'I am interested in learning about different things' (97 per cent in P4 and P7 and 94 per cent in S2). The proportion of P4 pupils agreeing with the statement 'I don't like learning' decreased between 2013 and 2015 (14 to 11 per cent).

Pupils were also asked about working with numbers. Chart 4.3 illustrates similar patterns to learning in general. Enjoyment is highest in P4 and P7 where 90 per cent and 83 per cent of pupils stated they enjoyed working with numbers, respectively. At S2, two-thirds of pupils reported enjoying numeracy work. The proportion of pupils that agreed with the statement 'I learn things quickly when working with numbers' has shown a statistically significant decrease for all stages between 2013 and 2015. The largest decrease is for S2 from 70 per cent in 2013 to 64 per cent in 2015; however this follows a rise from 63 per cent in 2011.

**Chart 4.3: How much do you agree with the following?**
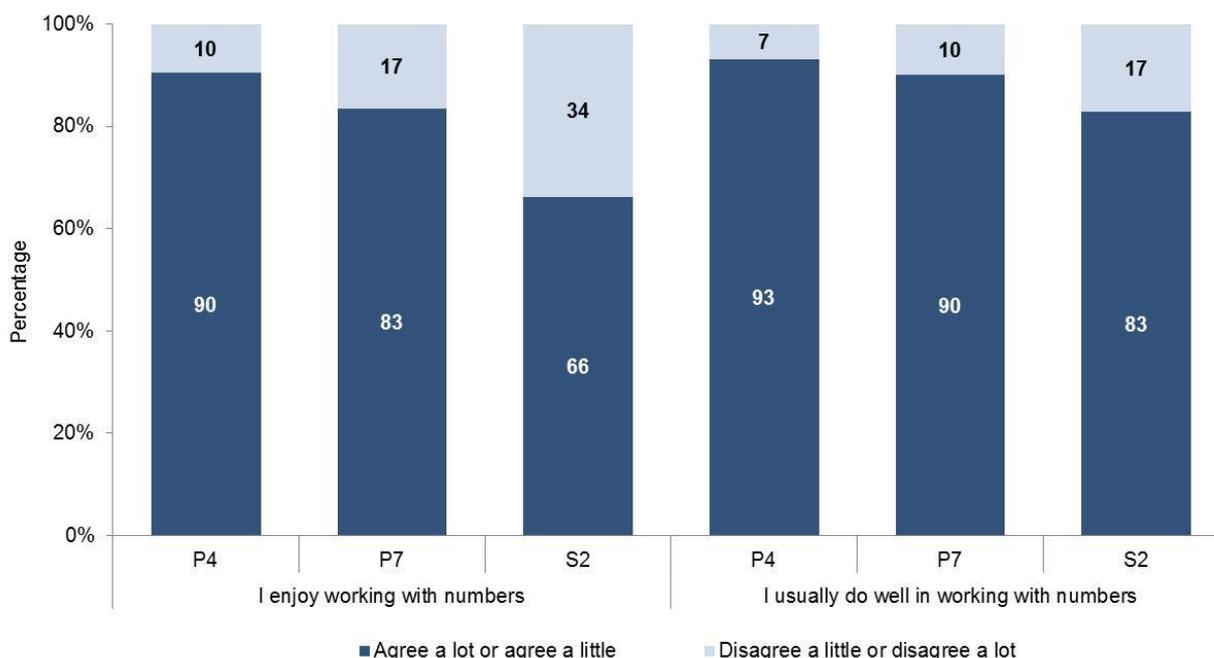
Pupils were asked about perceptions of their abilities in each of the numeracy organisers. Chart 4.4 shows the proportion of pupils answering very good or good and the subjects are ordered according to perceptions at P7. 'Chance and uncertainty' and 'fractions, decimal fractions and percentages' were consistently reported as the areas where fewest pupils thought they were good, while 'money' and 'time' were generally the most favoured.

The proportion of S2 pupils reporting that they thought they were very good or good showed a statistically significant decrease between the 2013 and 2015 surveys in four of the eight numeracy organisers they were asked about. These included 'measurement' (67 to 62 per cent), 'data and analysis' (55 to 52 per cent) and time (83 to 81 per cent) 'In all cases this represents a reversal of the increases seen between 2011 and 2013. However, for the three other areas that showed increases between 2011 and 2013 ('fractions', 'chance and uncertainty' and 'number and number processes') there remains statistically significant increases over the period 2011 to 2015.

For P7 pupils there has been a decrease in those who thought they are good or very good at 'measurement' from 70 per cent in 2013 to 64 per cent in 2015.

**Chart 4.4: How good do you think you are at the following? (Proportion responding very good or good, sorted by P7**)
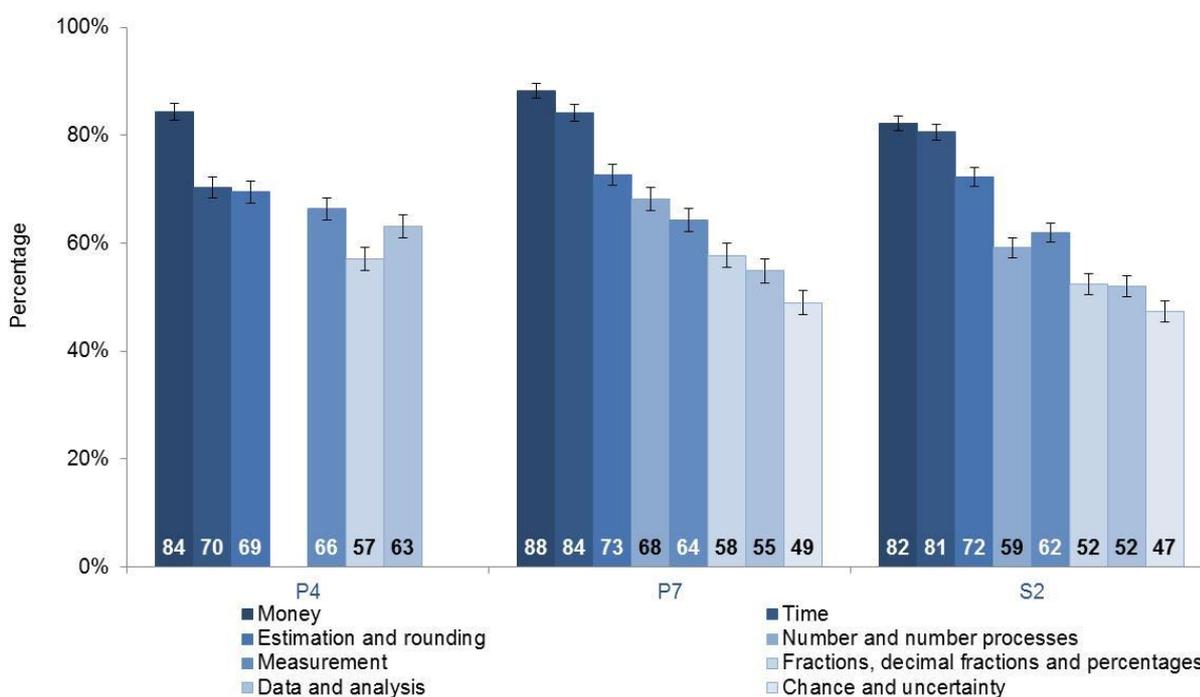
*P4 pupils were not asked about the 'chance and uncertainty' and 'number' organisers.

4.3 Links between attitudes and attainment

The results showed evidence of a difference between pupils' views of their abilities in numeracy and their actual performance in the SSLN. To illustrate this Chart 4.5 shows the difference between S2 pupils' views of their abilities (proportion of pupils who thought they were good or very good) and the assessment results (proportion of questions answered correctly), by numeracy organiser.

S2 pupils viewed their own ability more positively than their performance in the assessment for all eight numeracy organisers. However there was substantial variation depending on the organiser. For example 52 per cent of S2 pupils thought they were good or very good at 'data and analysis' and 48 per cent of those questions were answered correctly. This compares to 81 per cent of pupils who thought they were good or very good at 'time' whereas only 41 per cent of those questions were answered correctly.

**Chart 4.5: Difference between S2 pupils' view of ability and performance**
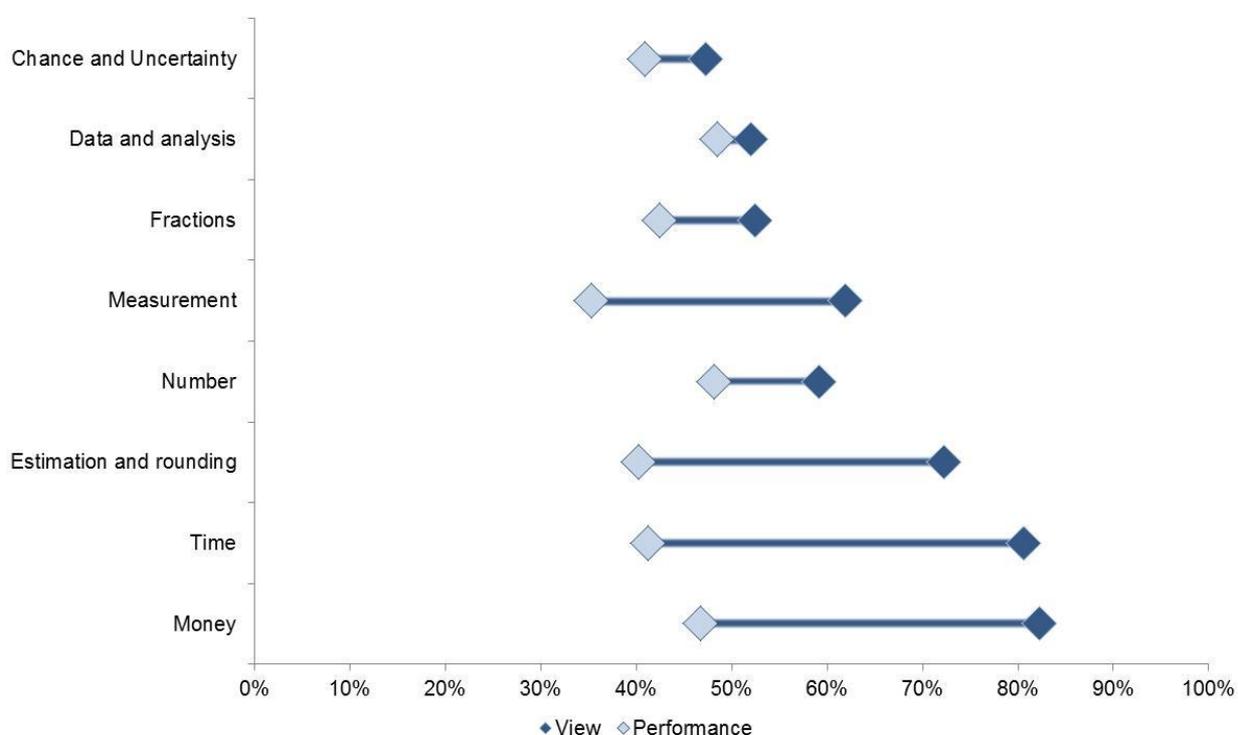
P4 and P7 pupils also rated their ability more favourably than the results of the survey suggests but not to the same extent as S2 pupils. P4 pupils were more positive than the survey for five of the six organisers, whilst P7 pupils were more positive than the survey for five of the eight organisers they were asked about.

4.4 School environment and use of ICT

Pupils were also asked about their school environment. Chart 4.6 illustrates the answers for two questions on behaviour. A higher proportion of P4 and P7 pupils report that 'most pupils behave well in my class' than is the case at S2. Eighty-three per cent of P4 and 82 per cent of P7 pupils agree with this statement compared to 66 per cent of S2 pupils. However when asked how much they agree with the statement 'I am often distracted from my work by other pupils talking or misbehaving' 72 per cent of P4 agree a lot or a little and 67 per cent of P7 and S2 pupils agree a lot or a little.

Chart 4.6: How much do you agree with the following?
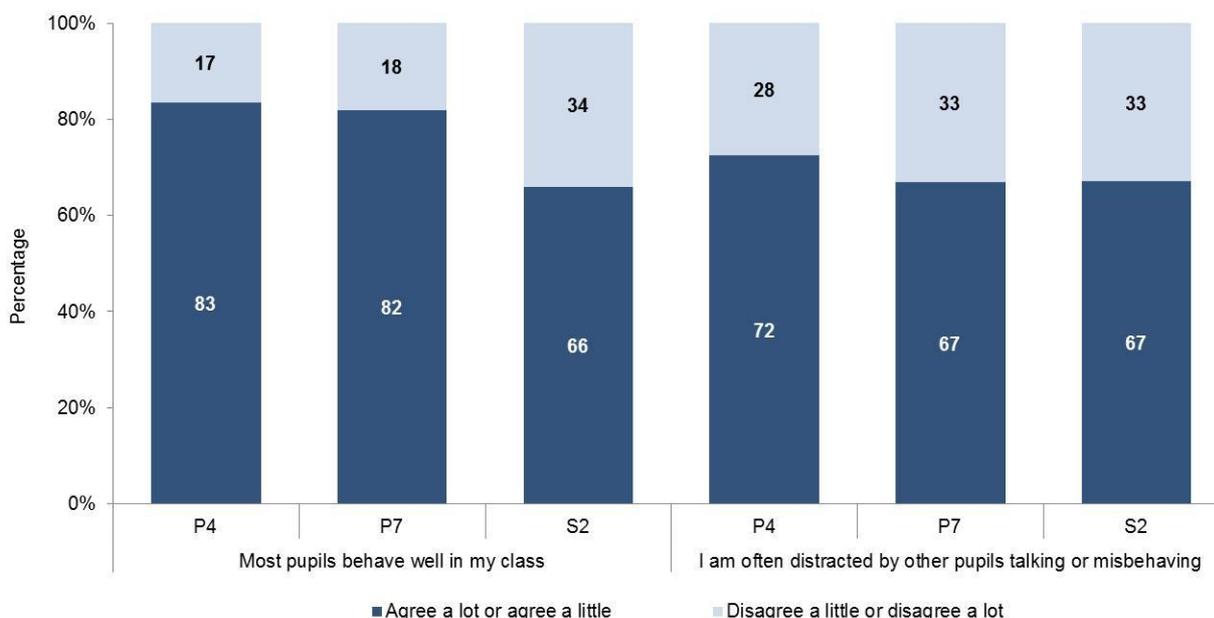
Pupils were asked what they would do if they didn't understand what they were learning, Chart 4.7 shows the results. For P4 and P7 pupils the most common response was to 'ask a teacher or classroom assistant'. Forty-two per cent for P4 pupils and 52 per cent for P7 pupils would do this very often. However S2 pupils were more likely to 'ask another pupil to help me' which 51 per cent of respondents said they would do very often.

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Chart 4.7: Responses to the question 'If I don't understand what we are learning in class, I…'. (Proportion replying very often)
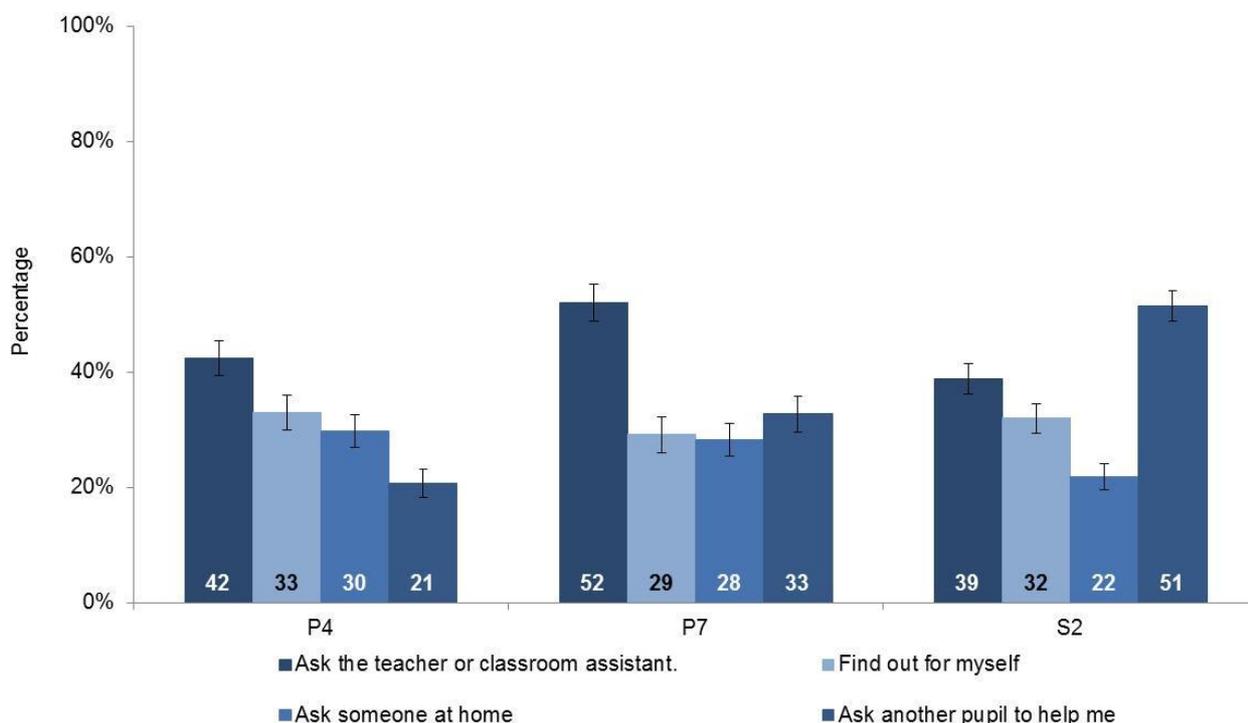

A minority of students at all stages felt they were included in decisions that related to their class/school very often. The proportion varied from 15 per cent at S2, to 25 per cent at P4, peaking at 36 per cent at P7.

When asked about their engagement in cultural and local activities pupils in S2 were less likely to be involved across all measures than was the case for both P4 and P7. In particular the proportion of pupils who said they or their class had engaged in 'activities related to the environment' decreased from 66 per cent in P4 and 72 per cent in P7 to just 26 per cent in S2. Similarly, when asked about 'activities that involve people in your local area' 43 per cent of S2 pupils said they had been involved in the current school year compared to 70 per cent in P4 and 77 per cent in P7.

Pupils were asked a series of questions about the use made of ICT. A high proportion of pupils, across all stages, were confident in their use of ICT. Over 90 per cent of pupils were confident in using a computer or tablet to find out information or carry out research. Large majorities at all stages reported being confident typing and editing work, creating tables, graphs or charts and making presentations.

Chart 4.8: How often do you use computers, tablets, etc to…
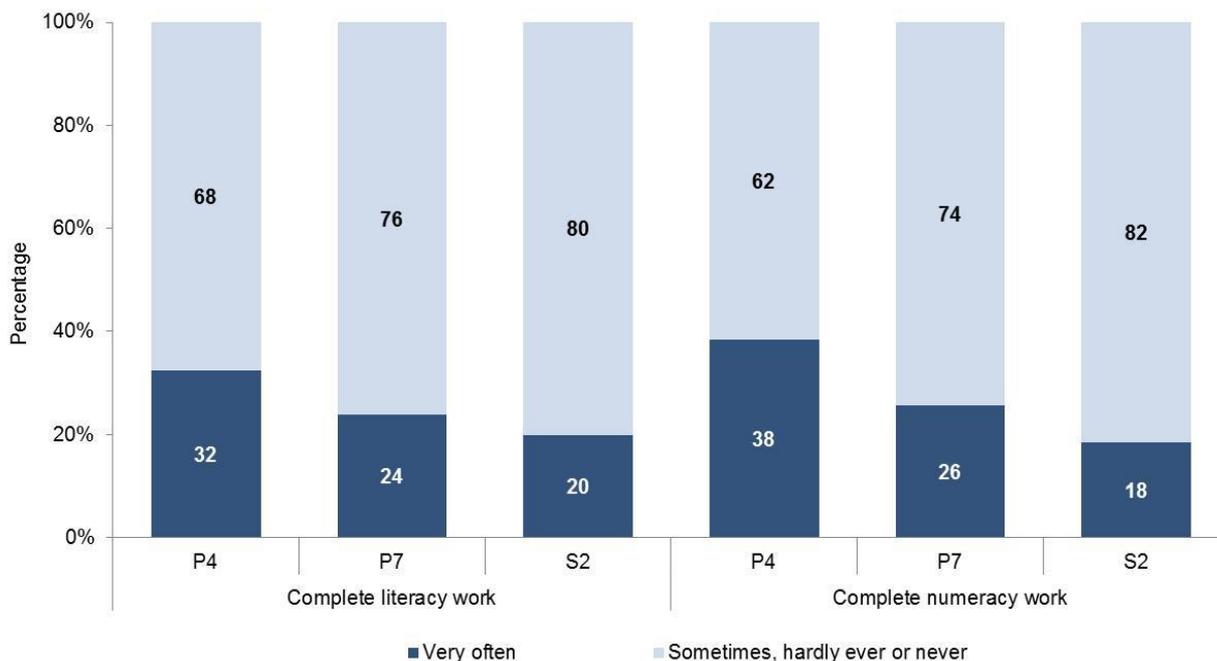
Pupils also reported enjoying using computers and tablets and doing well in computer based tasks, at all stages. Chart 4.8 shows the use made of computers, tablet etc. The use made of them for literacy and numeracy work was highest at P4 and lowest at S2. At P4, 32 per cent of pupils reported using computers or tablets to complete literacy work and 38 per cent numeracy work. In P7, this was 24 per cent for literacy and 26 per cent for numeracy; for S2 this was 20 per cent for literacy and 18 per cent for numeracy.

Chapter 5: Teacher questionnaire

- **Teachers report that pupils often talk about what they are learning with their peers, and also that they get the opportunity to explain how they have a solved a problem in their own words: 60 per cent of primary teachers, over 90 per cent of secondary Mathematics teachers and over 70 per cent of secondary non-Mathematics teachers state pupils do this most days or most weeks.**

- **The vast majority of primary teachers and secondary Mathematics teachers are confident in delivering the numeracy Es and Os. Secondary non-Mathematics teachers reported lower levels of confidence, the lowest rate being 64 per cent reporting confidence in teaching 'chance and uncertainty'.**

This questionnaire asked teachers about their experiences and opinions of teaching numeracy. This was distributed to all P4 class teachers in half of primary schools and all P7 teachers in the other half of primary schools. In secondary schools questionnaires were given to ten teachers: two S2 Mathematics teachers and two S2 teachers in each of four other broad curriculum groupings:

- Science and Technology
- Social Studies, Religious & Moral Education (RME) and Health & Wellbeing
- Expressive Arts and Languages
- Support for Learning (SfL)

There were three versions of the questionnaire (primary, secondary Mathematics and secondary non-Mathematics) though many of the questions were consistent across the three versions. Full results are available in the supplementary data tables.

5.1 Classroom activities and resources

Teachers were asked how often pupils in their classes spend time doing a range of activities. The activities which the highest percentages of teachers reported pupils undertook on most days were 'being taught with the whole class together', 'working quietly on their own' and 'talking about what they are learning in pairs or in groups'.

There continues to be a reported increase in how often pupils in primary classes spend time 'explaining in their own words how they solved a problem', with 60 per cent of teachers in 2015 reporting that pupils spend time undertaking this activity on most days, compared to 54 per cent in 2013 and only 44 per cent in 2011.

There were decreases in the proportion of teachers stating S2 pupils spend time 'finding out things by exploring or investigating' between 2013 and 2015. In 2013, 50 per cent of secondary Mathematics teachers reported that pupils spend time 'finding out things by exploring or investigating' on most days or most weeks but this decreased to 40 per cent in 2015. The equivalent figures for secondary non-Mathematics teachers are 72 per cent in 2013 and 67 per cent in 2015.

Primary and secondary Mathematics teachers were asked about the numeracy resources they make use of. The most common resources that were utilised daily were commercially produced materials (e.g. textbooks/software packages), the experiences and outcomes, materials developed by the teachers themselves and interactive whiteboards. The proportion of secondary Mathematics teachers who use IT packages most weeks (or more often) increased from 39 per cent in 2013 to 55 per cent in 2015, and the use of 'materials produced by a teachers' group/association' rose from 24 per cent in 2013 to 35 per cent in 2015.

5.2 Teaching numeracy across the curriculum

Chart 5.1 shows the percentage of teachers reporting they were very confident or fairly confident in delivering the numeracy experiences and outcomes. High proportions of primary school teachers and secondary Mathematics teachers reported confidence, with over 95 per cent of teachers very or fairly confident in delivering the experiences and outcomes across all organisers in the numeracy curriculum. In relation to 'chance and uncertainty', the lowest proportion of teachers reported confidence in delivering this numeracy organiser in comparison to the others (86 per cent of primary teachers).

Chart 5.1: Percentage of teachers reporting they were very confident or fairly confident in delivering the numeracy experiences and outcomes, by organiser.
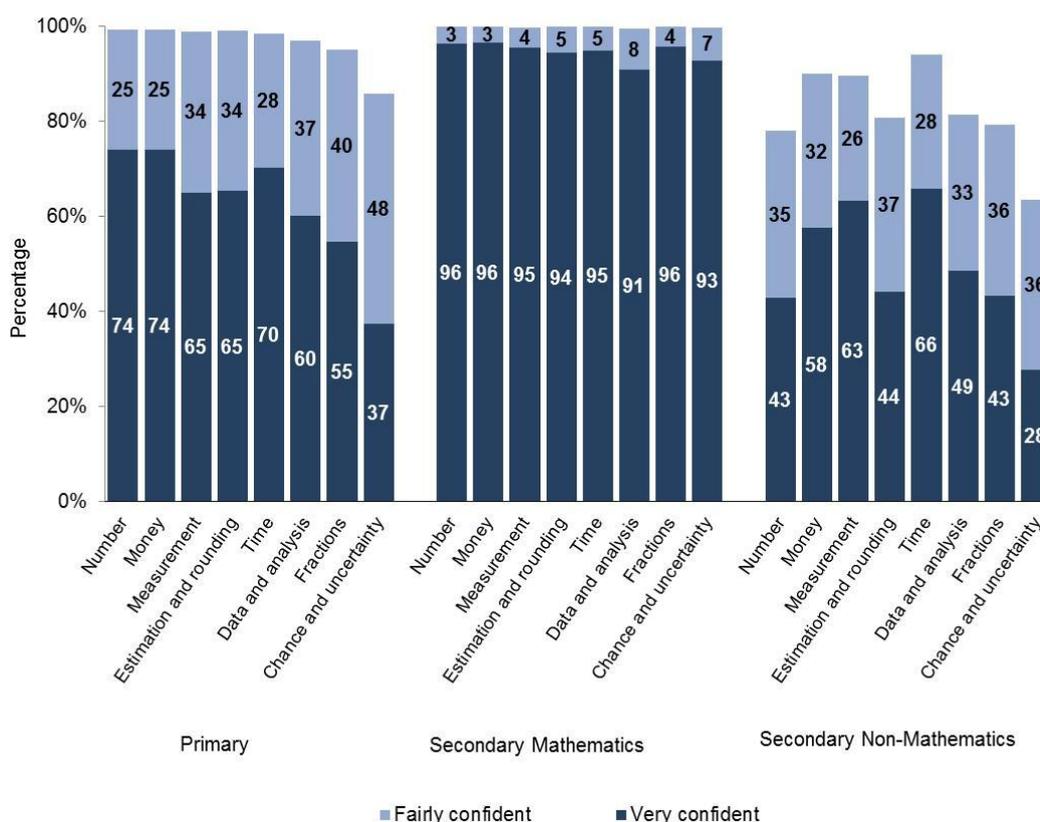
There were slightly lower levels of teachers reporting confidence in delivering all organisers among secondary non-Mathematics teachers, with the least confidence relating to teaching ideas of 'chance and uncertainty', where 64 per cent of teachers reported confidence. This group also showed a decline in the proportion that were confident teaching 'data and analysis' from 85 per cent in 2013 to 81 per cent in 2015. Although this remains above the 75 per cent reported in 2011.

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There was variation in confidence levels within the secondary non-Mathematics sector, as higher levels of Support for Learning (SfL) teachers reported confidence in delivering the experiences and outcomes across all numeracy organisers when compared to expressive arts and languages teachers. For example, 95 per cent of SfL teachers reported confidence in delivering the 'number and number processes' experiences and outcomes, compared to 62 per cent of expressive arts and languages teachers. Also, 78 per cent of SfL teachers reported confidence in delivering the 'chance and uncertainty' experiences and outcomes, compared to 47 per cent of expressive arts and languages teachers.

In 2015, there is little to no change in the levels of secondary Mathematics teachers reported confidence in teaching all numeracy organisers compared to the already high figures reported by the 2013 survey.

For secondary non-Mathematics teachers the increases shown between 2011 and 2013 remain but have not been repeated. Confidence in teaching all numeracy organisers is higher in 2015 than in 2011 but there is little change between 2013 and 2015.

For primary teachers, there was no change to the high levels of confidence teachers have in delivering all numeracy organisers. Nearly all primary teachers report that they are confident teaching all organisers with the exception of 'chance and uncertainty' where consistently around 85 per cent are fairly or very confident.

5.3 Professional development

Teachers were asked how often they had taken part in various forms of Career-Long Professional Learning (CLPL) in the last twelve months and, if they had, how useful they had found it. The CLPL related to numeracy experiences and outcomes only. This explains the reported lower participation rates for secondary non-Mathematics teachers when compared to primary teachers and secondary Mathematics teachers.

Amongst primary school teachers (Chart 5.2) and secondary Mathematics teachers the most frequently used forms of CLPL were:
- reading and discussing the numeracy experiences and outcomes (Es & Os) with colleagues (88 per cent of primary teachers and 85 per cent of secondary Mathematics teachers had taken part in this CLPL activity)
- sharing standards and moderation (79 per cent and 85 per cent had taken part respectively)
- professional enquiry through reading/personal study (80 per cent and 81 per cent had taken part respectively)

Chart 5.2: Proportion of primary teachers participating in CLPL activity in numeracy in last twelve months
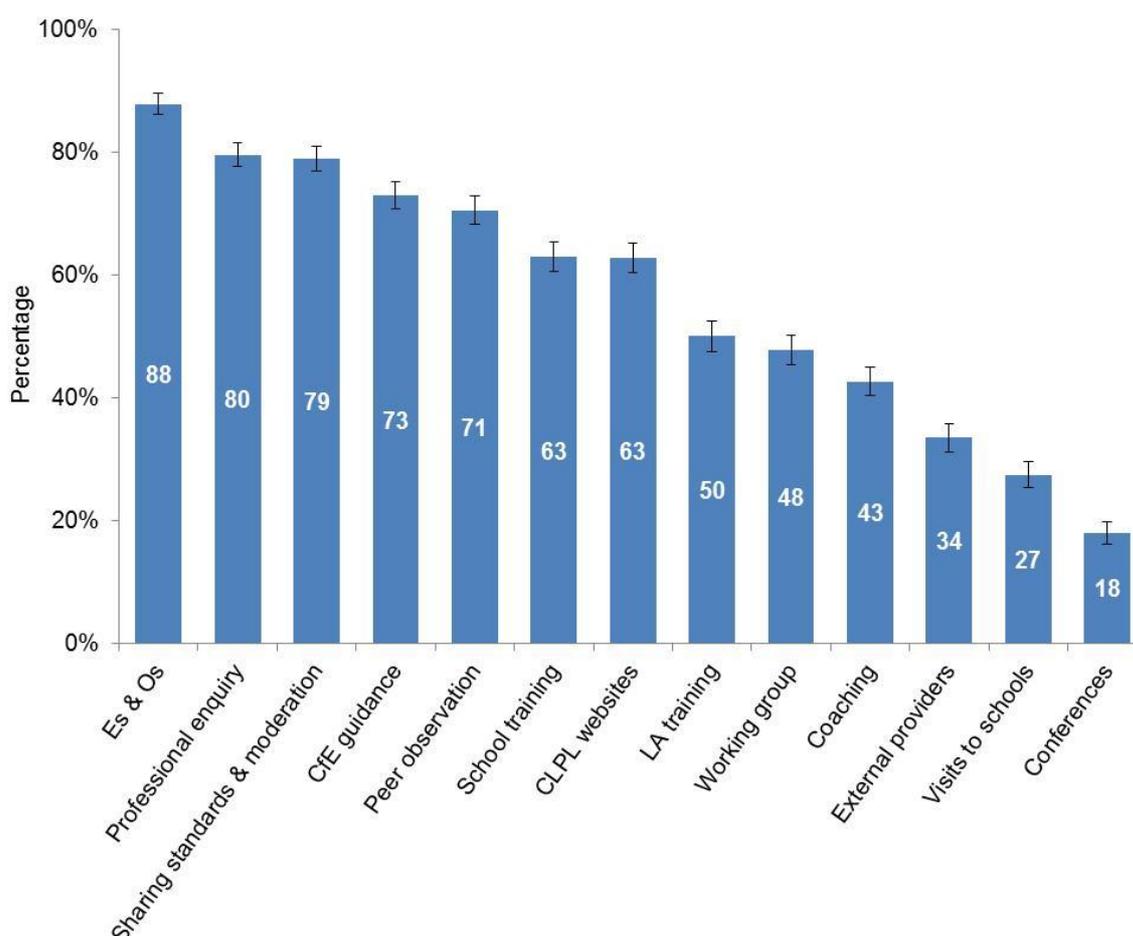
See data tables for full descriptions and for responses for secondary school teachers.

The CLPL activity with the highest ratings for level of impact was 'sharing standards and moderation'. Of those who took part in this activity 68 per cent of primary teachers, 61 per cent of secondary Mathematics teachers and 47 per cent of secondary non-Mathematics teachers rated the impact as high or very high. Other highly rated activities included 'reading and discussing numeracy experiences and outcomes with colleagues' and 'reading and discussing other guidance/exemplifications with colleagues'.

Chapter 6: Background notes

6.1 Sampling frame

The sampling frame for the pupil sample is all P4, P7 and S2 pupils attending all mainstream schools in Scotland that have registered to participate in the SSLN. The SSLN includes Gaelic medium and independent schools but excludes special schools. Pupils with Additional Support Needs attending mainstream schools are included in the sample and should be given the same level of support they would normally have for assessments in class. The P7 pupil cohort in the 2013 survey is the same as the S2 cohort in 2015. The pupils sampled to participate in the survey will not necessarily have been the same in each year.

The sampling frame for the teacher questionnaire is all P4, P7 and secondary teachers in all participating schools.

6.2 Sample design

The pupil sample design is a two stage stratified random sample, i.e. pupils are selected at random within schools and by gender. The sample consists of two P4 and two P7 pupils from every participating primary school and up to twelve S2 pupils from every participating secondary school. This produces a target sample size of around 4,000 pupils per stage. Pupil results are weighted to account for different school sizes, the small number of non-participating schools and gender and deprivation differences between the sample and the population.

The teacher questionnaire is allocated to all P4 teachers at half of participating primary schools and all P7 teachers at the remaining half of participating primary schools. Within secondary schools, the teacher questionnaire is allocated to ten teachers covering an equal distribution of four broad curriculum areas and Mathematics. This produces a total target sample size of around 5,400 teachers. Teacher results are weighted to account for non-response and differences in school size.

6.3 Response rate

The response rate at school level was 97 per cent in publicly funded schools and 33 per cent of schools in the independent sector.

6.4 Interpretation of SSLN results

As in all sample surveys, as the SSLN is based on a sample of pupils rather than on the whole population, the results shown are estimates. Therefore there is an element of uncertainty within the results because the pupils sampled may not reflect the population exactly.

Uncertainty around the results is estimated using standard errors. Standard errors are a measure of the variation in the data i.e. how each observation differs from the mean. As the SSLN sample design is not a simple random sample - in the SSLN pupils at small schools have a higher probability of being selected than pupils at large schools - this means that standard formulae used to calculate the standard error from a simple random sample would not be appropriate. Standard errors are therefore calculated empirically using the jackknife procedure.

Standard errors are in turn used to produce confidence intervals around the estimates. Confidence intervals show the range of values within which one can be reasonably confident that the actual value would lie if all pupils were assessed.

Ninety-five per cent confidence intervals for the main national estimates were calculated and were around ± two percentage points. This means that the true value of each estimate is likely to lie within two percentage points either side of the given estimate.

Where appropriate, confidence intervals are represented on charts by error bars to help demonstrate this level of uncertainty. Where the estimates are different but the error bars overlap we cannot be sure that the true values of each estimate are statistically significantly different from each other. Significance tests (t-tests) are used to assess the statistical significance of comparisons made.

Standard error data for the results, used to calculate these confidence intervals, are provided in the supplementary tables available at www.gov.scot/ssln.

6.5 Sources

Attainment data are derived from the results of assessments completed by participating pupils. For the numeracy survey the assessment consists of two written assessment booklets and one practical assessment. Written booklets consist of short answer (atomistic) tasks and multi-item (extended) tasks, which was based on a source datasheet with multiple associated questions. The practical assessment consists of a one-to-one verbal assessment between the pupil and the classroom teacher or another member of teaching staff.

All participating pupils complete an online questionnaire on factors that are likely to affect learning and attainment, such as pupil attitudes and experiences in class.

Sampled teachers are asked to complete an online questionnaire on their experiences and views on teaching numeracy.

All SSLN data was collected during the fieldwork period of 5th May – 5th June 2015.

6.6 Use made of SSLN data

The results of the 2015 SSLN will be used in line with the survey's three main objectives. These are:
- to monitor and report nationally on achievement in numeracy at P4, P7 and S2, in 2015 and over time
- to identify areas of numeracy strengths and weaknesses among pupils in Scotland to help inform policy initiatives and learning and teaching practices
- to gather information and report nationally on pupils' and teachers' experience of learning and teaching numeracy, along with their views about this experience.

In line with the aim to improve learning and teaching practice, Education Scotland has developed PLRs based on an in-depth analysis of 2011 and 2013 SSLN data. These resources are used by teachers, schools and authorities to support and inform learning and teaching practice in the classroom. These resources are available on the Education Scotland website.

The ways in which these materials can be used are set out below.

In the classroom, as a practitioner:
- as a resource for Professional Learning (CLPL) through use of the reflective questions provided for self-evaluation
- to focus lesson planning linking to known areas for improvement
- as a resource with links to further reading to help develop new concepts and ideas in teaching numeracy
- to enhance children and young people's numeracy skills, through use of the example questions and links to additional support materials
- to share views on numeracy across learning through use of the activities for teachers to stimulate dialogue and debate on teaching practice
- to support children and young people's numeracy learning across the curriculum.

In school, as a leader or manager:
- "to inform development plans to improve standards in numeracy" as per the CfE Implementation Plan
- to inform school improvement plans - the resources include high level findings with reflective questions for whole school self-evaluation to focus discussions around school improvement planning in relation to numeracy
- to lead CLPL sessions – the resources include a range of materials which can be used to lead specific sessions focusing on particular areas of numeracy e.g. pedagogy across the school, development of numeracy skills and strategies for learning and teaching to support these skills
- to provide a focus for classroom observation – learning communities in schools can use the resources to identify areas for improvement in their own context. The PLR appendices contain exemplar sheets for focused observation at school level.

At local authority level, as a development officer or Quality Improvement Officer:
- to provide a focus when supporting individual schools or clusters, to identify clear targets for improvement
- to inform and expand the range of professional development opportunities available for teachers
- to clarify the aspirations contained in the numeracy Es and Os
- to identify clear targets for improvement
- to inform transition projects by promoting collegiality with staff from primary and secondary schools.

6.7 Supplementary tables

The survey contains a huge amount of data which cannot be summarised in this publication. This report seeks to highlight the key messages and give a flavour of the range of analysis possible. Detailed tables of the performance data and pupil and teacher questionnaire results are published as supporting tables alongside this publication, and provide a fuller picture of the findings.

The following list of tables are available at www.gov.scot/ssln

Attainment
1.1: Distribution of scores by stage
1.2: Summary of performance by stage
1.3: Summary of performance by stage and gender
1.4: Distribution of scores by stage and deprivation category
1.5: Summary of performance by stage and deprivation category
1.6: Summary of performance by stage and organiser
1.7: Summary of performance by stage and task type type
1.8: Summary of performance by stage and numeracy operator
Attainment over time
2.1: Summary of performance by stage in 2011, 2013 and 2015
2.2: Summary of performance by stage and gender in 2011, 2013 and 2015
2.3: Summary of performance by stage and deprivation category in 2011, 2013 and 2015
2.4: Summary of performance by stage and organiser in 2011, 2013 and 2015
Pupil Questionnaire
3.1: Pupils' learning in school - Class activities
3.2: Pupils' learning in school - Class teacher engagement
3.3: Pupils' learning in school - School engagement
3.4: What pupils think about their learning - Engagement
3.5: What pupils think about their learning - Usefulness
3.6: Pupils' confidence in learning
3.7: What pupils think about numeracy - General
3.8: What pupils think about numeracy - Organisers
3.9: School and home
3.10: School Environment: Behaviour
3.11: School Environment: Understanding
3.12: School Environment: Decision making
3.13: School Environment: Activities
3.14: ICT: Use of computers, tablets, etc.
3.15: ICT: Confidence in use of computers, tablets, etc.
3.16: ICT: Attitudes
Teacher Questionnaire
4.1: Pupils' classroom activities in numeracy
4.2: Schools' wider links
4.3: Teachers' resources in numeracy
4.4: ICT supported activities
4.5: Integrating numeracy skills into teaching various curriculum areas - Primary
4.6: Integrating numeracy skills into teaching various curriculum areas - Secondary non-Mathematics
4.7: Confidence in delivering the numeracy experiences and outcomes
4.8: Confidence in delivering the numeracy experiences and outcomes - Secondary non-Mathematics breakdown
4.9: Gathering evidence of pupils' achievements in numeracy
4.10: Evaluating and recording the evidence of pupils' achievements in numeracy
4.11: Career-Long Professional Learning (CLPL) in numeracy

4.12: Career-Long Professional Learning (CLPL) in numeracy - Impact
Survey Data
5.1: Participation figures
Standard Errors
6.1: Assessment data
6.2: Pupil questionnaire data
6.3: Teacher questionnaire data

6.8 Cost of compliance

One of the recommendations resulting from the UK Statistics Authority assessment of the SSLN was to publish an estimate of the cost to data suppliers for participation. The Government Statistical Service has devised a method for estimating the cost that avoids imposing an extra burden on data providers. The method for calculating cost to organisations, including schools, is:

Cost = (number of responses x median time taken to respond in hours x hourly rate of typical respondent) + any additional costs experienced by data providers.

This methodology has been applied to the SSLN administration model and the estimated cost of compliance for the SSLN 2015 (numeracy) survey was £460,000.

6.9 Further information

Further information on the SSLN, including the supplementary tables and Survey Design Document, is available from www.gov.scot/ssln.

There is a range of other reliable information on the performance of Scotland's school pupils.

Scotland participates in the OECD's triennial Programme for International Student Assessment (PISA) survey. This assessment is carried out by 15 year-olds in over sixty countries, including all OECD countries, and as such is a key international benchmark of performance. The results of previous PISA surveys are available at www.gov.scot/pisa

The Scottish Government also publishes analysis of SQA exam results and leaver destinations. The latest post-appeal data are available at http://www.gov.scot/Publications/2015/06/2579

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Correspondence and enquiries

For enquiries about this publication please contact:
Marion MacRury
Education Analytical Services
Telephone: (0131) 244 0315
E-mail: ssln@gov.scot

For general enquiries about Scottish Government statistics please contact:
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