# NATIONAL NUMERACY PROJECT

## TECHNICAL REPORT 1998

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Rachel Felgate
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nfer

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We are grateful to all the National Numeracy Project schools for their co-operation with the data collection arrangements and also to the numeracy consultants in participating LEAs for their support.

The collection and analysis of this large volume of data can only be achieved by teamwork. At NFER, the team has included Field Research Services staff, statisticians and data-entry staff; all of whom have worked extremely hard to meet project deadlines and ensure the quality of the data. Special thanks are due to Anne Milne, Project Director at the NFER, for all her advice and guidance; and to Sandie Biggs for her total commitment to the work.

# Introduction

This report summarises at Project level the results of testing carried out during the Summer term 1998 in 3 cohorts of schools participating in the Project.

Schools in Cohort 1 were taking part in their third and final round of testing (Exit, Round 3) having taken Entry tests in January 1997 and Progress tests in May 1997. The year groups involved in these schools were Years 3, 4 and 6.

Schools in Cohort 2 were taking part in their second round of testing within the Project (Progress, Round 2) having taken Entry tests in May 1997. The year groups involved in these schools were Years 2, 3 and 5.

Schools in Cohort 3 were taking part in the first round of testing (Entry, Round 1). The year groups involved in these schools were Years 1, 2 and 4.

The tests used were designed for the Numeracy Project. Each year group has its own written and mental test. Written and mental scores were analysed separately and also combined to give an overall score.

The results of the tests have been analysed at each level i.e. pupil level, school level, LEA level and Project level and reported appropriately, e.g. individual pupils' performance has been reported only to their own school, individual school results have been reported to each school and also to their own LEA. This report contains analyses at Project level and summarises results from individual LEAs.

The data from the tests has been collated into tables and charts and has also been analysed using multilevel modelling techniques which allow background data at pupil and school level to be taken into account when comparing the results of one school with another or one LEA with another.

It is recognised that this report refers only to those schools in each LEA taking part in the Project and that this group of schools may not be representative of the LEA. However, for reporting purposes, the schools data have been grouped by LEA and will be referred to as LEA data.

## Guide to Terms

Terms which are referred to throughout the Multilevel Analysis in Section 1 and in tables and charts in Section 2 are defined here.

**Raw score** - This is the number of questions in the test that the pupil answered correctly, which ranges from 0 up to the maximum number of questions. One feature of a raw score is that it does not include any allowance for the pupil's age. The maximum number of marks for both the written and mental tests are given below.

| | **Written test** | **Mental test** | **Overall** |
|---|---|---|---|
| Year 1 | 33 | 18 | 51 |
| Year 2 | 38 | 19 | 57 |
| Year 3 | 45 | 24 | 69 |
| Year 4 | 49 | 24 | 73 |
| Year 5 | 50 | 30 | 80 |
| Year 6 | 50 | 30 | 80 |

**Standardised score** - This is the pupil's score put onto a different scale. There are two reasons why the standardised score scales are used:

(i) so that scores are on a scale that is readily recognisable, user-friendly, and common to all educational tests;

(ii) so that an age-allowance can be included, which means that pupils can be compared with other pupils of a different age. The standardised scores of the nationally representative sample are set to an average of 100 and to a standard deviation of 15 (see below).

**Mean score** - This is another term for the average score, i.e. the average score of all the pupils in the particular category.

**Standard deviation** - A measure of the spread of scores within a group of individuals. Normally we would expect about 95% of the individuals to be within 2 standard deviations either side of the mean: that is, with standardised scores lying between 70 and 130.

**Facility Value** - The facility value of each item (question) in a test is the overall percentage of pupils tested who give the correct answer.

## Outline of Table Contents

The same tables and charts are provided for each participating year group. Some tables and charts are common to all three cohorts but Cohorts 2 and 3 have additional charts and tables to illustrate progress made over time.

Pupils who were absent for the tests have not been included in calculation of the mean; pupils who were not tested for any other reason have been included in the mean with a standardised score of 69.

### Project Report 1

This report shows the mean standardised score for the written test, mental test and overall for this round of testing. In addition the report for Cohort 1 shows measures of progress between Round 1 and Round 3 (Entry to Exit) and for Cohort 2 shows measures of progress between Round 1 and Round 2 (Entry to Progress). The results are grouped according to various individual pupil level background factors such as gender, ethnicity etc.

### Project Report 2

This report shows the mean standardised score for the written test, mental test and overall for each LEA.

### Project Report 3

This report is provided for Cohorts 1 and 2 only. It shows the progress measures for the written and mental tests and overall for each LEA within the Project from Round 1 to Round 2 (Entry to Progress) for Cohort 2 and from Round 1 to Round 3 (Entry to Exit) for Cohort 1.

**Project Report 4**

This report is provided for Cohort 1 only. It compares the progress measures for each LEA from Round 2 to Round 3 and Round 1 to Round 3.

**Item Facilities**

This table lists the test questions (items) sorted according to the difference between facility values for the pupils in the Project and facility values for the National Standardisation sample. A positive percentage difference for a particular item indicates that the performance of Project pupils was better than that of pupils in the National Standardisation sample. Each item has been classified according to the type of question, and context where appropriate, in order to help identify patterns of performance. The codes used are given below together with the section of the Framework which addresses the appropriate topic.

| Question type | | Refer to these sections of the Framework |
|---|---|---|
| A | Addition | Understanding addition<br>Mental calculations (+ -)<br>Written calculations (+ -) from Yr.3 onwards |
| S | Subtraction | Understanding subtraction<br>Mental calculations (+ -)<br>Written calculations (+ -) from Yr.3 onwards |
| M | Multiplication | Understanding multiplication<br>Mental calculations (x ÷)<br>Written calculations (x ÷) from Yr.4 onwards |
| D | Division | Understanding division<br>Mental calculations (x ÷)<br>Written calculations from Yr.4 onwards |
| N | Number properties | Properties of numbers |
| P | Place value | Place value<br>Ordering |
| G | Rounding, approximating | Estimating<br>Rounding |
| R | Reading scales | Problems involving length, mass, capacity (reading from scales) |
| F | Fractions, decimals | Fractions and decimals |
| % | Percentages | Percentages |

**Context for calculations**

| | | |
|---|---|---|
| £ | Money | Problems involving money |
| C | Capacity | Problems involving length, mass or capacity |
| E | Everyday life | Problems involving 'real life' |
| H | Handling data | Handling data |
| I | Area and perimeter | Area and perimeter |
| K | Mass or weight | Problems involving length, mass or capacity |
| L | Length | Problems involving length, mass or capacity |
| T | Time and speed | Time |
| V | Volume | Volume |

**Type of calculation**

| | | |
|---|---|---|
| X | Calculation only, no context | see Mental calculations - using knowledge of number system and place value |
| B | Box arithmetic, answer given with unknown number to find | see Mental calculations - using knowledge of number system and place value |
| O | Open ended, more than one answer is possible | see Mental calculations - using knowledge of number system and place value |

# Summary of Findings

## Cohort 1

These pupils have been part of the Numeracy Project for two years and have been tested on three occasions, in January 1997, June 1997 and June 1998.

For all three year groups there has been a significant rise in their average age-standardised score between Entry and Exit testing.

| Year Group in 1998 | Average standardised score on Entry | Average standardised score on Exit | Increase in standardised score |
|---|---|---|---|
| Year 3 | 96.5 | 102.1 | 6.6 |
| Year 4 | 95.8 | 103.0 | 7.6 |
| Year 6 | 95.9 | 99.9 | 5.1 |

For this cohort in Years 3 and 6 it appears that greater progress was made between Round 1 and Round 2 testing than between Round 2 and Round 3, despite the fact that the testing periods for Round 1 and Round 2 were relatively close together. Year 4 made slightly more progress between Round 2 and 3. Not every pupil for whom a progress score was calculated at the end of Round 2 went on to be tested at the end of Round 3. The increase in score for Round 1-3 therefore, is not necessarily equal to the sum of the increase for Round 1-2 and Round 2-3.

Pupils in Year 4 and Year 6 had very similar levels of achievement on entry to the Project with both groups of pupils having generally below average standardised scores. These pupils were tested using the 'Year 4' test at two different time points (the Year 4 pupils on Exit and the Year 6 pupils on Entry). Comparison of average scores obtained from this test at the different points in time shows that the average achieved score in Cohort 1 schools improved by 7.1 standardised score points in just over one year.

| Year Group in 1998 | Increase in standardised score Round 1-2 | Increase in standardised score Round 2-3 |
|---|---|---|
| Year 3 | 5.2 | 1.6 |
| Year 4 | 3.3 | 4.3 |
| Year 6 | 3.7 | 1.6 |

## Cohort 2

These pupils have been part of the Numeracy Project for one year and have been tested on two occasions, in June 1997 and June 1998. For all three year groups there has been a significant rise in their average age-standardised score between Entry and Progress testing.

| Year Group in 1998 | Average standardised score on Entry | Average standardised score at Progress | Increase in standardised scores |
|---|---|---|---|
| Year 2 | 97.1 | 104.1 | 7.8 |
| Year 3 | 98.3 | 102.4 | 4.2 |
| Year 5 | 98.4 | 101.3 | 3.4 |

It can be seen from the results above that the characteristics of the year groups within each cohort vary. Pupils in Cohort 1 generally had lower average standardised scores on entry to the Project than pupils in Cohort 2.

## Cohort 3

For Cohort 3 pupils who will become part of the Numeracy Project in Autumn 1998 the average scores on entry are shown below:

| Year Group in 1998 | Average standardised score on Entry |
|---|---|
| Year 1 | 98.4 |
| Year 2 | 100.6 |
| Year 4 | 100.4 |

### Pupil and School Factors

The progress scores for Cohorts 1 and 2 varied significantly according to a number of pupil and school factors. Full details of these variations are given in the multilevel analysis for each Cohort. The multilevel analysis also incorporates responses given by headteachers to a questionnaire about various aspects of the work of the Project which was completed by schools in Cohorts 1 and 2.

## Control group test results

A sample of schools were invited to act as a 'control' group to enable the progress measured in National Numeracy Project schools to be compared to progress made in numeracy in schools generally. These schools came from LEAs not involved in either the National Numeracy Project or the National Literacy Project and were selected so that as far as possible they would be similar to schools in Cohort 2 of the National Numeracy Project. The control schools were asked to administer the tests used in the Project to pupils in the appropriate year group – at the same time and under the same conditions as for Project. The progress scores for this group of schools are illustrated below, together with the progress scores for Cohort 2 schools

| | **Control Group** | | | **Numeracy Project** | | |
|---|---|---|---|---|---|---|
| **Year group in 1998** | **Written** | **Mental** | **Overall** | **Written** | **Mental** | **Overall** |
| Year 2 | 1.41 | 2.56 | 1.99 | 6.7 | 9.0 | 7.8 |
| Year 3 | 2.89 | 2.50 | 2.48 | 4.3 | 4.6 | 4.2 |
| Year 5 | 0.81 | 2.08 | 1.38 | 2.8 | 4.0 | 3.4 |

The results indicate that although progress in numeracy is evident in both the control group and the National Numeracy Project schools, considerably more progress has been made in the Project schools.

# Section 1

# Multilevel Analysis

## Introduction to Multilevel modelling

Multilevel modelling is a development of a common statistical technique known as 'regression analysis'. This is a technique for finding a straight-line relationship which allows us to predict the values of some measure of interest ('dependent variable') given the values of one or more related measures. For example, we may wish to predict schools' average test performance given some background factors, such as free school meals and school size (these are sometimes called 'independent variables').

Multilevel modelling is a recent development of regression analysis which takes account of data which is grouped into similar clusters at different levels. For example, individual pupils are grouped into year groups or cohorts, and those cohorts are grouped within schools, which may themselves be grouped within LEAs. There may be more in common between pupils within the same cohort than with other cohorts, and there may be elements of similarity between different cohorts in the same school, or different schools in the same LEA. Multilevel modelling allows us to take account of this hierarchical structure of the data and produce more accurate predictions, as well as estimates of the differences between pupils, between cohorts, between schools, and between LEAs.

Details of the way in which multilevel models were set up for each of the Cohorts in the National Numeracy Project in 1998 are given below together with the full results of each analysis. For each Cohort the findings are summarised briefly first.

## Cohort 1 (Entry, Progress and Exit)

### Summary

- There were statistically significant increases in age-standardised test scores between Round 1 (entry) and Round 2 (progress) and Round 3 (exit) testing. This applies to all three test scores and all year groups.

- The variables with apparently positive relationships with test score are stage of English fluency, some ethnic groups relative to the white population (Indian and Chinese), being a voluntary aided or controlled school, and KS2 teaching time. Background variables with

apparently negative relationships with test scores include sex (girls having lower scores than boys, on average), SEN level, eligibility for free school meals, percentage of SEN pupils and percentage eligible for free school meals, and pupil/teacher ratio.

- The class size variable was positively related to overall performance, and in some cases there was a significant relationship with the squared class size. The latter effect implies that the relationship with class size is greater with larger classes. It is important, however, not to interpret such a finding in a causal fashion – it is a common finding, and is probably more to do with the general tendency to put higher performers in larger classes and lower performers in smaller ones.

- Looking at interaction terms, it seems that progress from Round 1 to Round 3 is positively related to voluntary schools, and negatively to sex (girls make on average less progress than boys) and original score. In Years 4 and 6, class size was positively related to progress.

- The factors from the headteacher questionnaire were overall positively related to progress in written and overall scores, although different ones appeared most significant relative to different outcome scores. Factor 3 (framework and initial audit) was significantly related to progress for both written and overall scores.

- Considering year groups separately, in general the same relationships as above were found, with some minor variations.

- There was much more variation between pupils than between year groups, schools or LEAs. About 5% of the variation between pupils could be explained by pupil background variables, and about half of the variation between schools could be explained by a combination of pupil and school variables.

**The Model for Cohort 1**

The third round of data collection for Cohort 1 of the National Numeracy Project included background data, and baseline and progress scores for pupils in Years 3, 4 and 6. The following types of data were collected:

- Raw and standardised scores on mathematics tests at entry and at the end of both academic years (different tests for each Year);
- Pupil background data;
- School background data;
- School-level data on factors such as time devoted to mathematics etc.

Table 1 contains details of all the variables derived from the data collection exercise which were used in this phase of multilevel analysis. The aim of the analysis was to investigate factors at the school and pupil levels which might be associated with mathematics scores, and to see which were apparently statistically significant. It was also possible to carry out an analysis of progress, making use of the fact that standardised scores were available at three different time-points for most pupils. This analysis depends critically, of course, on the assumption that the standardisations were carried out in a comparable fashion at all time-points.

In addition to the normal school and pupil background data, results from questionnaires to headteachers were available, in the form of factor scores representing the perceived usefulness of various aspect of the Project. These were included to investigate any apparent relationships with progress.

**Results of Multilevel Analysis**

Tables 3 to 8 show some of the detailed results of the multilevel model fitting to various datasets: all years combined for each of three outcomes, and Years 3, 4 and 6 for overall score only. In technical language, these tables show the random variances at each level at each stage of model fitting, plus the coefficients of the background variables in the 'full model'. They also show whether or not variances or coefficients are statistically significant at the 5% level, as well as 95% confidence intervals for each parameter.

These tables, although they show the full results of all the modelling carried out at this stage, may not be easy to interpret for all readers. To help with this, therefore, the coefficients which express the estimated relationships between test scores and each of the background variables have been converted into 'effect sizes' which represent the 'strength' of each relationship as a percentage, and which allow the different variables to be compared in terms of their apparent influence on the test outcome, when all other variables are simultaneously taken into account.

Effect sizes are plotted in Figures 1 to 6, for the six different models described in Tables 3 to 8. For each variable, the estimated effect size is plotted as a diamond, with a vertical line indicating the 95% confidence interval for the estimate. Any variable whose line intersects the horizontal zero axis can be regarded as not statistically significant (at the 5% level). Positive values imply a positive relationship with the test score outcome; negative values imply that test score tend to decrease with higher values of the given background variable.

The way in which these models have been set up means that most of the effects relate to overall performance in various aspects of mathematics, over both testing periods. Thus the strong positive relationship with stage of English fluency implies that mathematics scores as a whole are related to this factor, but does not tell us anything about progress from one time point to another. To measure the latter, we need to include 'interaction terms' in the model, which relate background factors to changes over time in scores.

Nine such 'interaction terms' were included in the model, to look at the relationships between background variables (including headteacher questionnaire factors) and progress:

- **SEXINT:** Relationship between females and progress;
- **OSCORINT:** Relationship between overall score on entry and progress;
- **MAT1INT:** Relationship between time dedicated to mathematics at KS1 and progress;
- **MAT2INT:** Relationship between time dedicated to mathematics at KS1 and progress;
- **VOLINT:** Relationship between voluntary sector schools and progress;
- **HTINT1:** Relationship between usefulness of the 5-day course and progress;

- **HTINT2:** Relationship between usefulness of the training and consultancy and progress;
- **HTINT3:** Relationship between usefulness of the framework and internal audit and progress;
- **HTINT4:** Relationship between usefulness of the project materials and progress.

The interpretation of the model results for these variables is straightforward. If, for example, the coefficient of SEXINT is negative, this implies that girls are making less progress than boys on average. A positive coefficient for VOLINT would imply that pupils in voluntary schools are making more progress than others, and so forth. Note that we would expect a negative coefficient for OSCORINT, as this implies that those starting from a higher score are likely to make less progress on average.

**Figure 1: Effect Sizes from Multilevel Model fitted to Written Test Scores for All Year Groups**

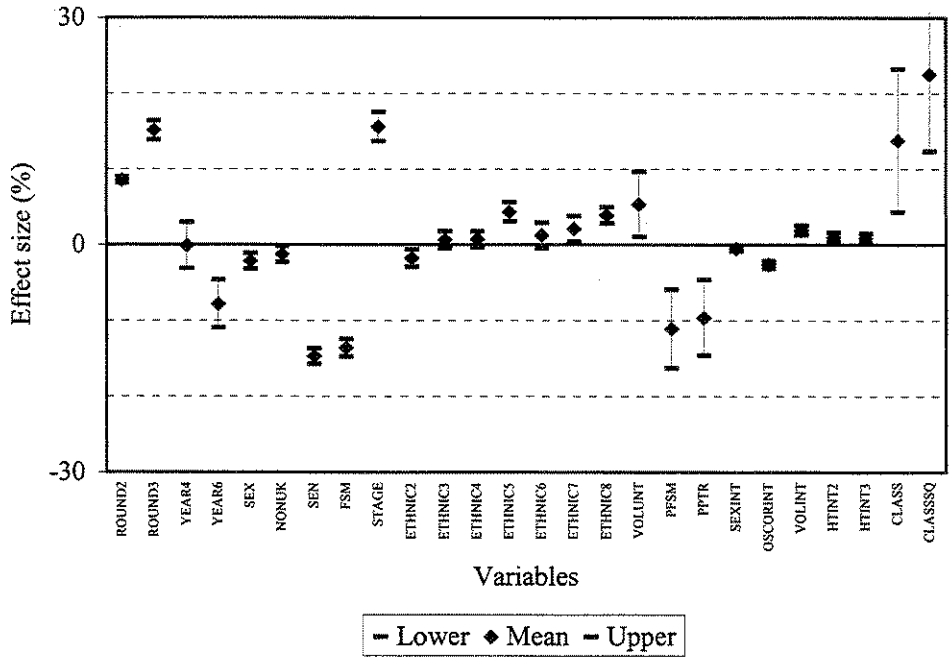


**Figure 2: Effect Sizes from Multilevel Model fitted to Mental Test Scores for All Year Groups**

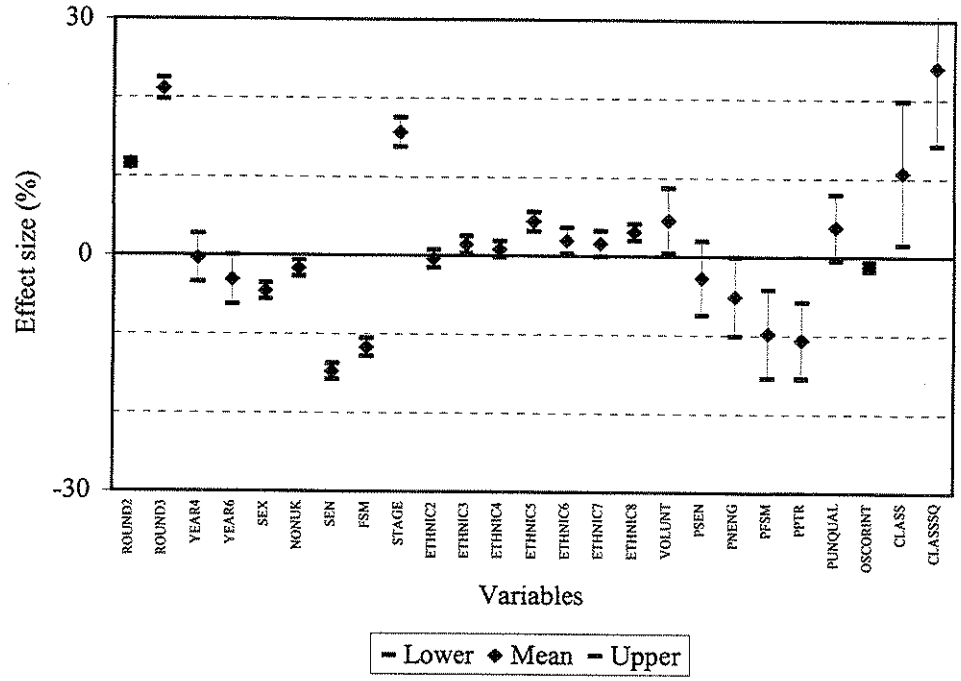
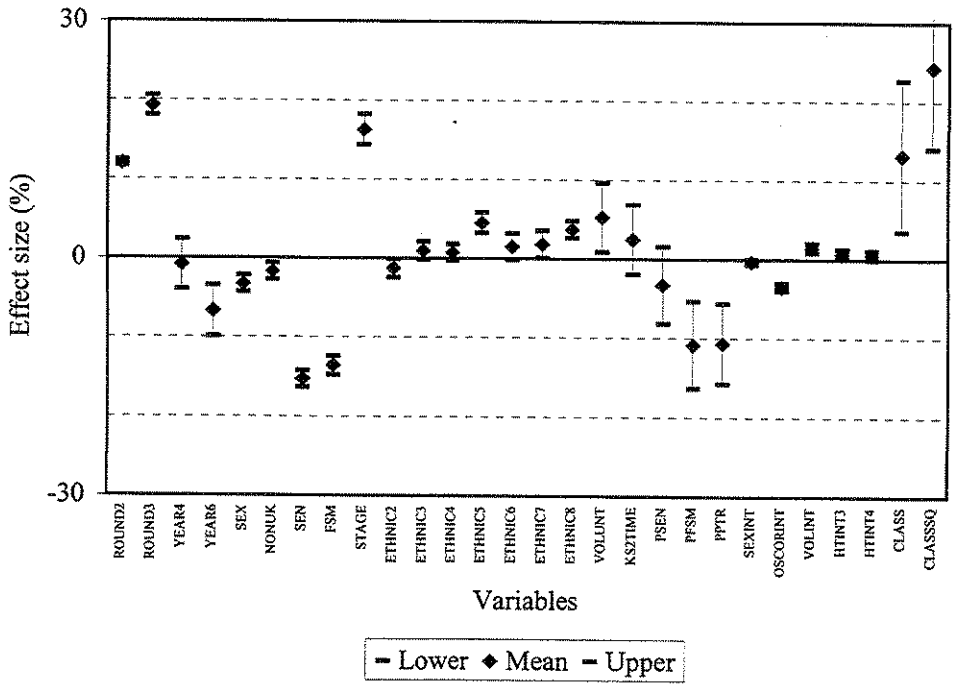



**Figure 3: Effect Sizes from Multilevel Model fitted to Overall Test Scores for All Year Groups**



In Figure 1 to 3, above, it is clear that the variables with apparently positive relationships with test score are round of testing (with significantly higher age-standardised scores in Rounds 3 and 2 compared with Round 1), stage of English fluency, some ethnic groups relative to the white population (i.e. Indian and Chinese), being a voluntary aided or controlled school, and KS2 teaching time. Background variables with apparently negative relationships with test scores include sex (girls having lower scores than boys, on average), SEN level, eligibility for free school meals, percentage of SEN pupils and percentage eligible for free school meals, and pupil/teacher ratio.

The class size variable was positively related to overall performance, and in some cases there was a significant relationship with the squared class size. The latter effect implies that the relationship with class size is greater with larger classes. It is important, however, not to interpret such a finding in a causal fashion – it is a common finding, and is probably more to do with the general tendency to put higher performers in larger classes and lower performers in smaller ones.

Looking at interaction terms, it seems that progress from Round 1 to Round 2 is positively related to voluntary schools, and negatively to sex (girls make on average less progress than boys) and original score. The factors from the headteacher questionnaire were overall positively related to progress in written and overall scores, although different ones appeared most significant relative to different outcome scores. Factor 3 (framework and initial audit) was significantly related to progress in both cases.

Some of the relationships displayed here will be intuitively reasonable, and others may be less so. Some may be artefacts, or produced through a relationship with a third factor not included in the model. The other three figures, for Years 3 to 6, will show some of the same patterns and some which are different. For example, in Years 4 and 6, class size was positively related to progress.

**Figure 4: Effect Sizes from Multilevel Model fitted to Overall Test Scores for Year 3**

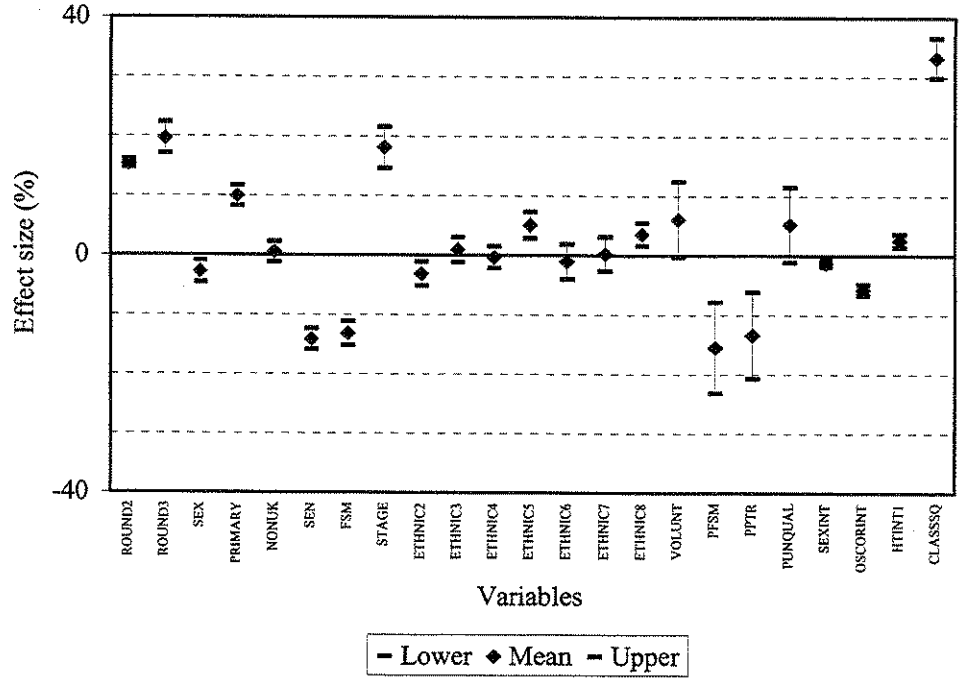



**Figure 5: Effect Sizes from Multilevel Model fitted to Overall Test Scores for Year 4**

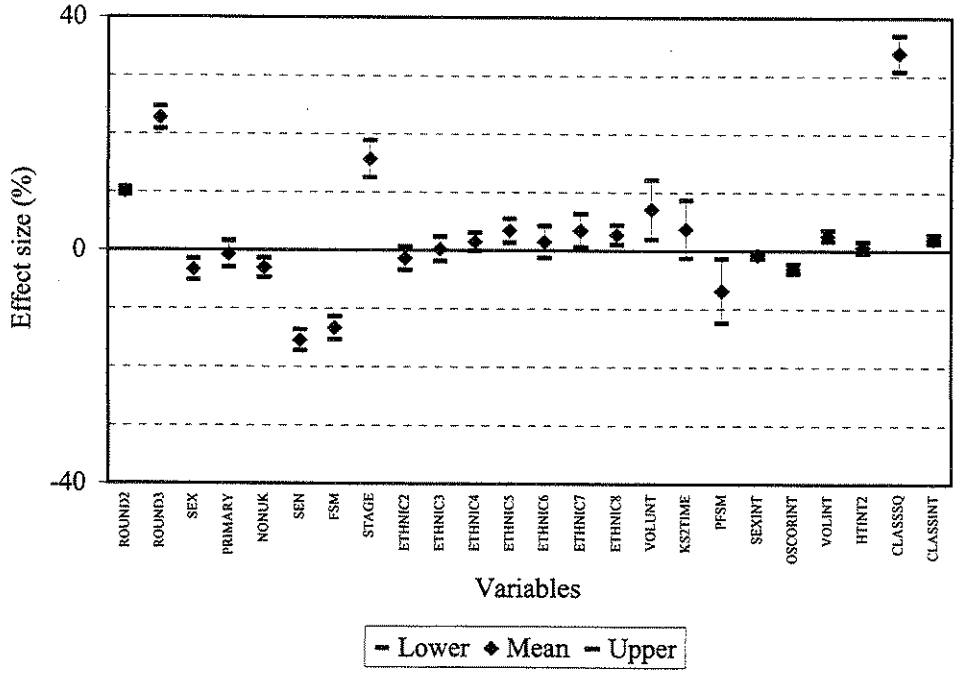
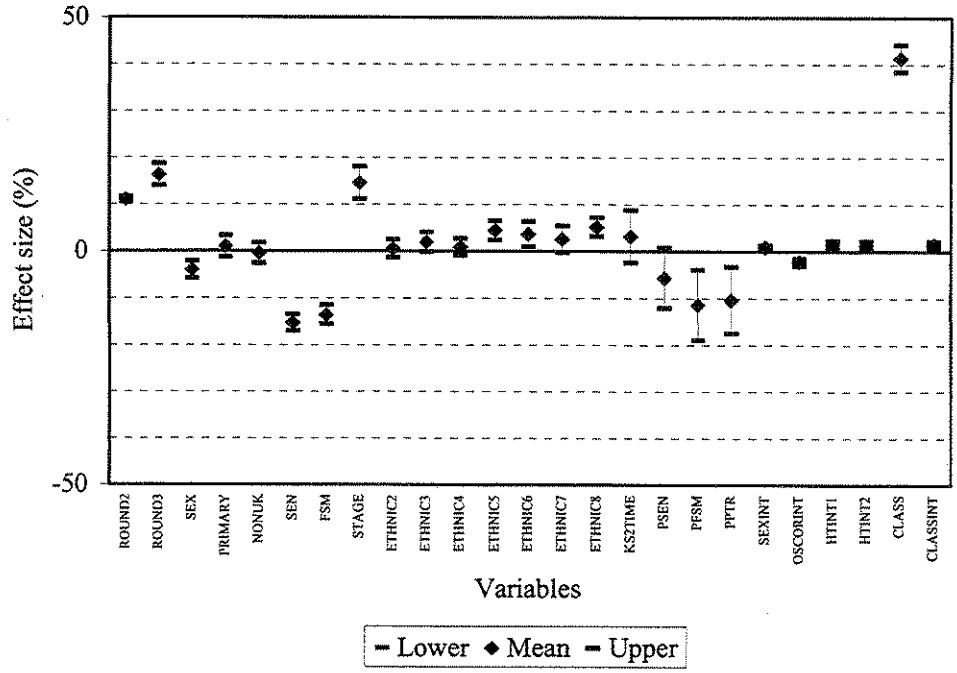


**Figure 6: Effect Sizes from Multilevel Model fitted to Overall Test Scores for Year 6**




In addition to the relationships between test scores and a host of background variables described above, the multilevel model provides other information. In particular, it estimates the amount of variation in test scores which can be attributed to different levels in the model. The unified model had five levels: LEA, school, cohort and pupil, and there will in general be measurable differences in average test scores between units at each level. The amount of variation at each level is measured by the 'variance' (basically the square of the standard deviation) at that level, and may change as extra background variables are fitted to the model. For example, some of the differences between schools in average test scores may be eliminated when we take into account school-level variables such as percentage eligible for free school meals.

**Figure 7: Random Variances in Overall Test Score at Different Levels for All Year Groups**

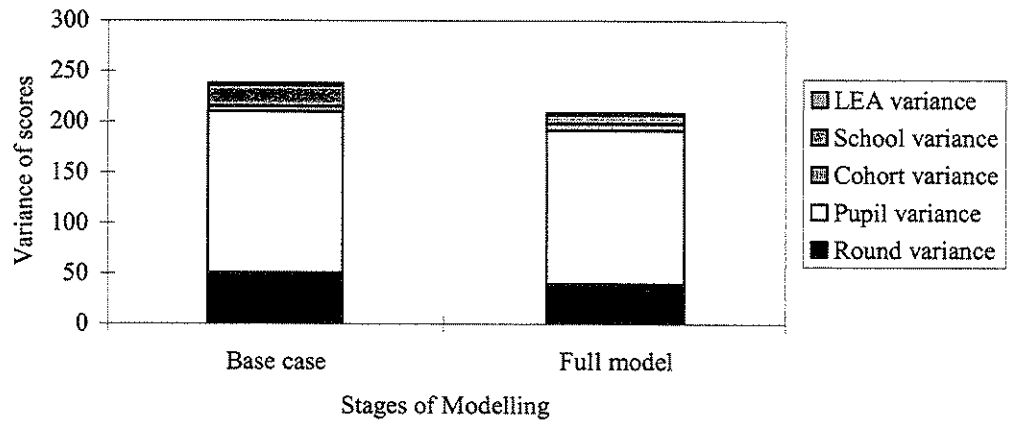


Figure 7 illustrates this effect, using the unified model fitted to all year groups. At each of the stages of modelling, the total variance is divided between the five levels in the model. For the base case, the total variance is close to the theoretical value of 225 for an age-standardised score with standard deviation 15.

It is clear from the above figure that in general the variance increases at lower levels: the greatest degree of variation is between pupils, and then between year groups, and then between schools, and lastly between LEA groups of schools. The bottom level, the 'round variance' is a measure of the amount of 'noise' or measurement error between different assessments of the same pupils. The introduction of pupil-level background variables reduces the pupil variance by about 5%, and pupil and school information together reduce school-level variance by over a half.

The model allows us to estimate for each school or LEA a 'residual', which is the amount by which its results (aggregated over all three rounds of testing) differ from what might have been expected, given all the pupil and school background data. Figures 8 to 11 show the residuals for all the LEAs with schools in the project for overall test score, for all year groups combined and for Years 3, 4 and 6 separately. The plots indicate by a vertical line the 95% confidence interval for each LEA's residual value. Only those LEAs whose lines do not intersect the horizontal zero axis might be regarded as having results significantly different from expected.

**Figure 8: Adjusted LEA Residuals (Overall Score) for Cohort 1, All Year Groups, showing 95% confidence intervals**

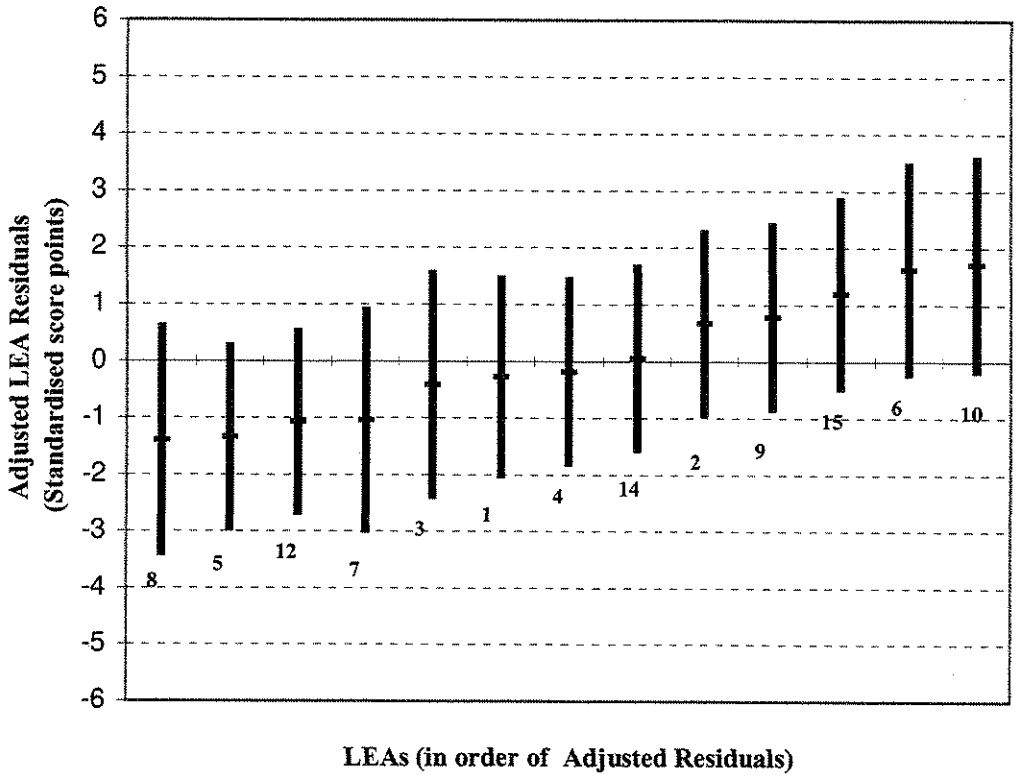


**Figure 9: Adjusted LEA Residuals (Overall Score) for Cohort 1 Year 3, showing 95% confidence intervals**

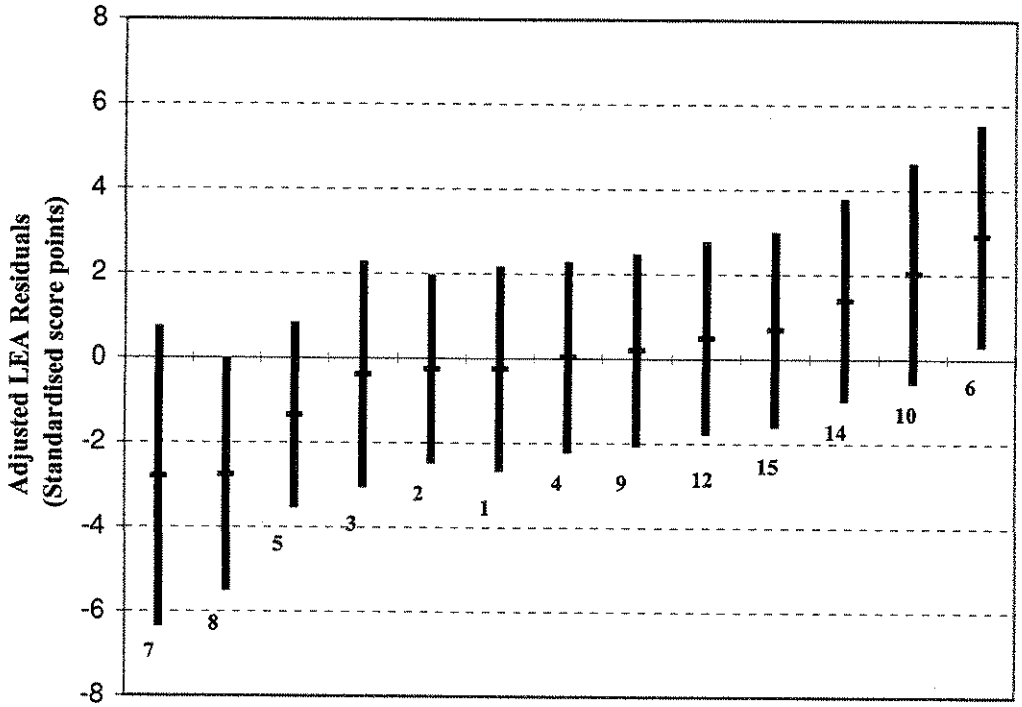



**Figure 10: Adjusted LEA Residuals (Overall Score) for Cohort 1 Year 4, showing 95% confidence intervals**

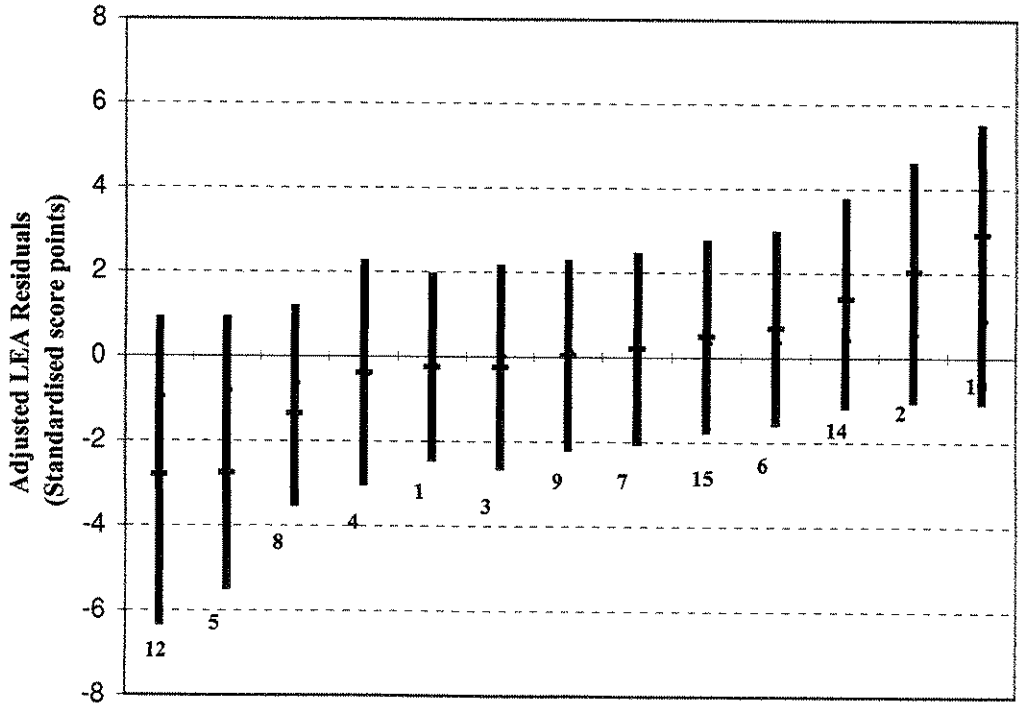
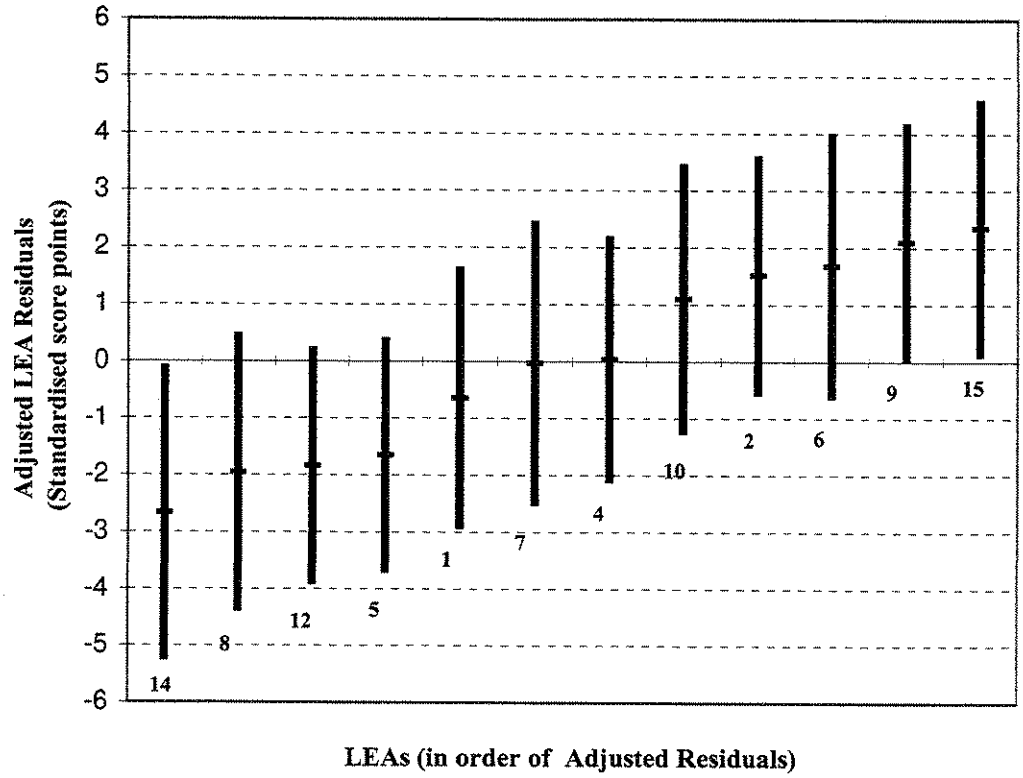


**Figure 11: Adjusted LEA Residuals (Overall Score) for Cohort 1 Year 6, showing 95% confidence intervals**




The above plots indicate how LEA results relate to the overall project, **in terms of overall performance averaged over all rounds of testing**, and controlling for a range of background factors. What is also of interest is the amount of progress made between rounds 1 and 3. This can be assessed for each LEA by means of a 'random slopes' multilevel model, in which it is assumed that the amount of progress between rounds of testing varies from school to school and from LEA to LEA. The estimated progress measures for the LEAs and their standard errors can be estimated, **in terms of the average change in standardised score from Round 1 to Round 3**, controlling for other factors. These progress measures are plotted in Figures 12 to 15, for all year groups combined and separately for Years 2, 3 and 5.

**Figure 12: Adjusted LEA Progress Measures (Overall Score) for Cohort 1, All Year Groups, showing 95% confidence intervals**

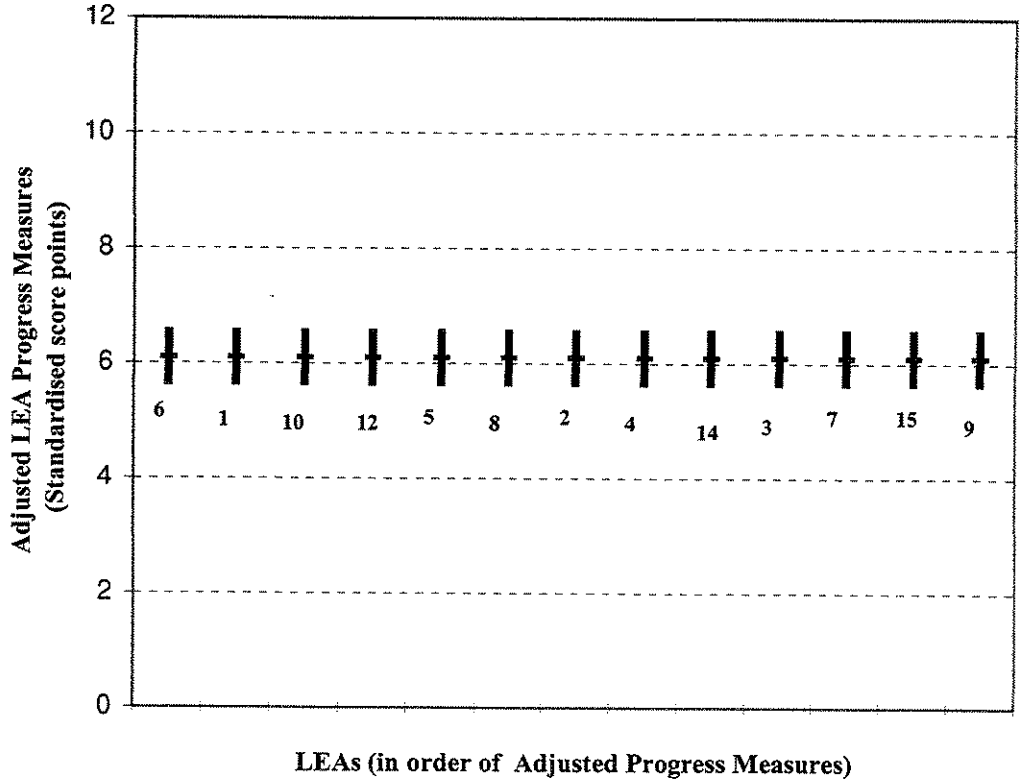



**Figure 13: Adjusted LEA Progress Measures (Overall Score) for Cohort 1 Year 3, showing 95% confidence intervals**

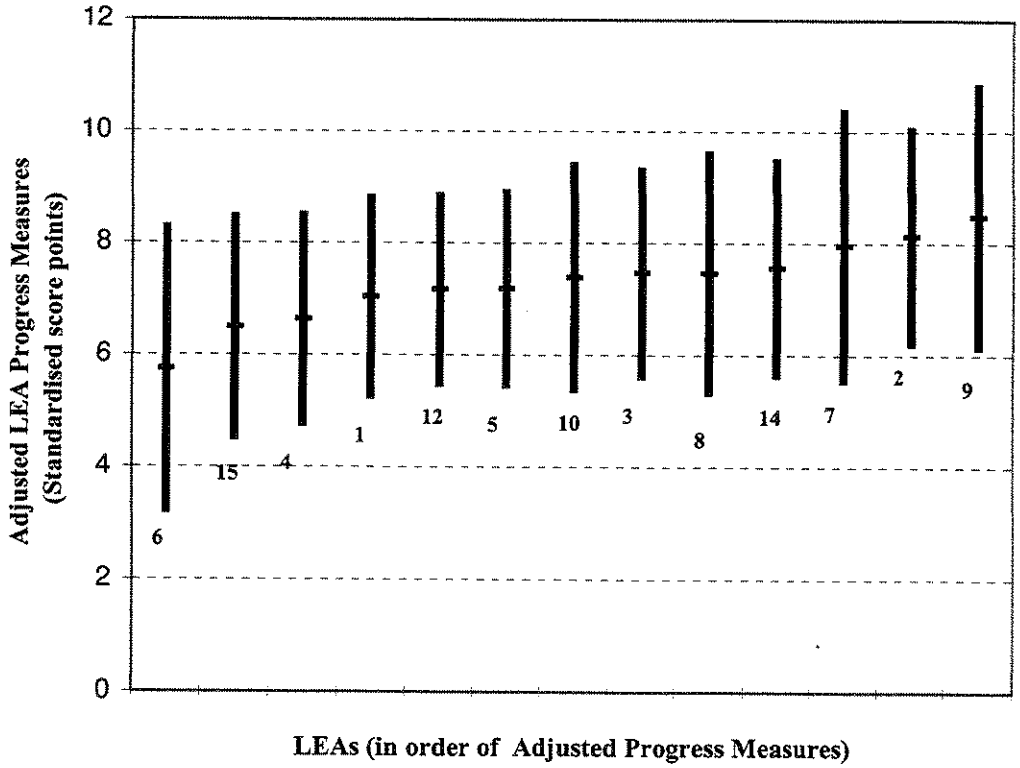


**Figure 14: Adjusted LEA Progress Measures (Overall Score) for Cohort 1 Year 4, showing 95% confidence intervals**

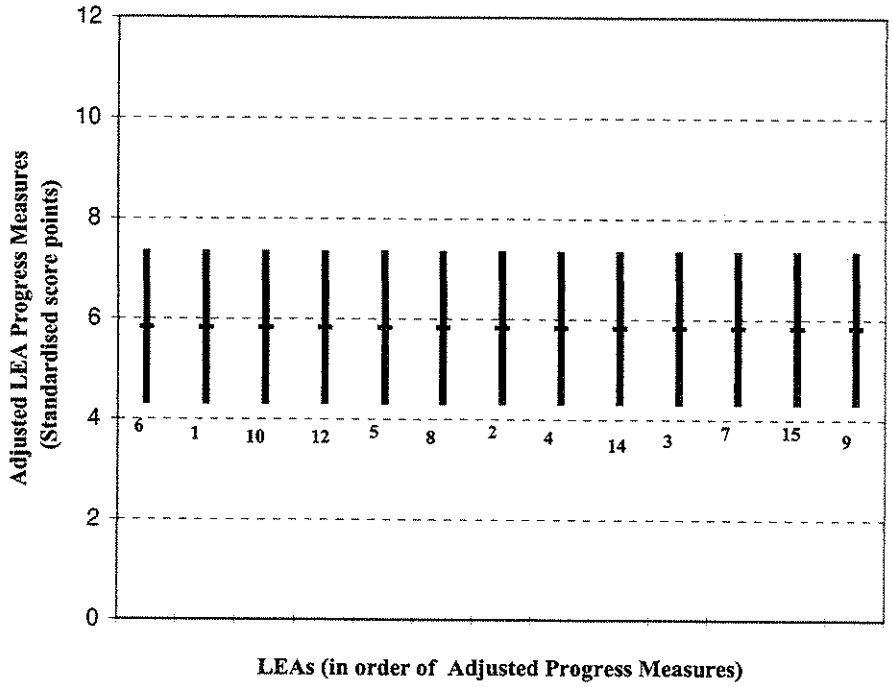
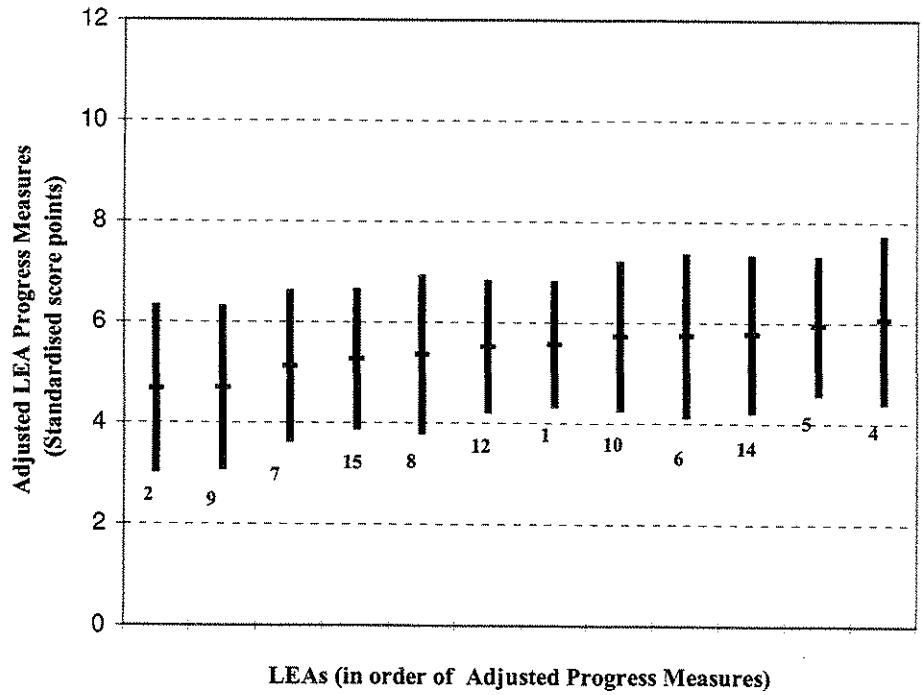



**Figure 15: Adjusted LEA Progress Measures (Overall Score) for Cohort 1 Year 6, showing 95% confidence intervals**




It should be noted in the above figures that there is very little difference between LEAs in terms of progress measures; in some cases the multilevel model estimated the LEA-level progress measures to be identical.

## Table 1: Details of Variables Used in Multilevel Modelling

| | Range | | |
|---|---|---|---|
| **Name** | **Min.** | **Max.** | **Description** |
| LEA | 204 | 888 | LEA identifier |
| SCHOOL | 1 | 216 | School ID |
| YEAR | 3 | 6 | Year Group |
| PUPILID | 2001 | 7072 | Pupil ID |
| ROUND | 1 | 3 | Round of testing |
| SWSCORE | 69 | 131 | Written Standardised score |
| SMSCORE | 69 | 131 | Mental Standardised score |
| SOSCORE | 69 | 131 | Overall Standardised score |
| VOLUNT | 0 | 1 | Voluntary school |
| KS1TIME | 21 | 24 | KS1- Hours of lessons per week |
| KS2TIME | 22 | 25 | KS2- Hours of lessons per week |
| KS1MTIME | 5 | 8 | KS1- Hours of Maths lessons per week |
| KS2MTIME | 5 | 8 | KS2- Hours of Maths lessons per week |
| MAT1TIME | 1 | 5 | Time dedicated to MATHS at KS1 |
| MAT2TIME | 1 | 6 | Time dedicated to MATHS at KS2 |
| PSEN | 1 | 80 | Percentage of SEN pupils |
| PMATHS | 0 | 10 | Percentage of teachers with MATHS degree |
| PNENG | 0 | 99 | Percentage of pupils with 1st language not English |
| PFSM | 2 | 96 | Percentage of pupils receiving Free school meals |
| PPTR | 3 | 29 | Pupil teacher ratio |
| PDEGREE | 0 | 93 | Percentage of teachers with degree |
| PUNQUAL | 0 | 23 | Percentage of teachers unqualified |
| NOR | 35 | 785 | School number on roll |
| SEX | 0 | 2 | Sex (0 = male, 2 = female) |
| AGE | 77 | 141 | Age in months |
| PRIMARY | 0 | 21 | Terms of primary education |
| NONUK | 0 | 1 | Non-UK education |
| SEN | 0 | 1 | Special educational needs |
| FSM | 0 | 1 | Free school meals |
| STAGE | 1 | 5 | Stage of English fluency |
| ETHNIC2 | 0 | 1 | Black Caribbean |
| ETHNIC3 | 0 | 1 | Black African |
| ETHNIC4 | 0 | 1 | Black Other |
| ETHNIC5 | 0 | 1 | Indian |
| ETHNIC6 | 0 | 1 | Pakistani |
| ETHNIC7 | 0 | 1 | Bangladeshi |
| ETHNIC8 | 0 | 1 | Chinese |
| CONS | 1 | 1 | Constant term |
| YEAR3 | 0 | 1 | In Year 3 |
| YEAR4 | 0 | 1 | In Year 4 |
| YEAR6 | 0 | 1 | In Year 6 |

**Table 1 (continued)**

| | Range | | |
|---|---|---|---|
| **Name** | **Min.** | **Max.** | **Description** |
| SEXINT | -0.5 | 0.5 | Interaction term - sex by time |
| OSCORINT | -50.5 | 50.5 | Interaction term – prior score by time |
| MAT1INT | -1.13 | 1.13 | Interaction term – KS1 Maths by time |
| MAT2INT | -1.63 | 1.63 | Interaction term – KS2 Maths by time |
| VOLINT | -0.39 | 0.39 | Interaction term – Vol. school by time |
| HTINT1 | -25.5 | 25.5 | HTQ interaction term - 5-day course |
| HTINT2 | -28.5 | 28.5 | HTQ interaction term - Training & consultancy |
| HTINT3 | -21.5 | 21.5 | HTQ interaction term - Framework & internal audit |
| HTINT4 | -18.5 | 18.5 | HTQ interaction term - Project materials |
| CLASS | 10 | 40 | Class size |
| CLASSSQ | 100 | 1600 | Class size squared |
| CLASSINT | -9 | 9 | Interaction term - class size by time |
| CLSQINT | -367 | 87 | Interaction term - class size squared by time |

**Table 2: Numbers of LEAs, Schools and Pupils in Each Model**

| **Model** | **LEAs** | **Schools** | **Pupils** |
|---|---|---|---|
| All years (unified) | 13 | 199 | 23,265 |
| Year 3 | 13 | 184 | 7622 |
| Year 4 | 13 | 190 | 7800 |
| Year 6 | 12 | 176 | 7763 |

## Table 3: Detailed Results of Multilevel Analysis of Written Test Score for All Year groups

| | | | | 95% Confidence interval | |
|---|---|---|---|---|---|
| **Parameter** | **Estimate** | **Standard error** | **Sig.** | **Min.** | **Max.** |
| **Base case** | | | | | |
| LEA variance | 1.929 | 1.400 | | -0.815 | 4.673 |
| School variance | 20.020 | 2.499 | * | 15.122 | 24.918 |
| Year variance | 5.694 | 0.774 | * | 4.178 | 7.210 |
| Pupil variance | 154.600 | 1.655 | * | 151.356 | 157.844 |
| Round variance | 53.280 | 0.378 | * | 52.540 | 54.020 |
| **Final model** | | | | | |
| LEA variance | 0.000 | 0.000 | | 0.000 | 0.000 |
| LEA slope covar. | 0.000 | 0.000 | | 0.000 | 0.000 |
| LEA slope var. | 0.000 | 0.000 | | 0.000 | 0.000 |
| School variance | 13.800 | 2.346 | * | 9.202 | 18.398 |
| School slope covar. | -1.086 | 0.979 | | -3.005 | 0.833 |
| School slope var. | 7.534 | 0.837 | * | 5.894 | 9.174 |
| Year variance | 19.310 | 1.765 | * | 15.851 | 22.769 |
| Pupil variance | 133.400 | 1.422 | * | 130.613 | 136.187 |
| Round variance | 44.280 | 0.315 | * | 43.663 | 44.897 |
| **Fixed coefficients** | | | | | |
| CONS | 75.390 | 3.154 | * | 69.208 | 81.572 |
| ROUND2 | 2.777 | 0.067 | * | 2.646 | 2.908 |
| ROUND3 | 4.839 | 0.210 | * | 4.427 | 5.251 |
| YEAR4 | -0.037 | 0.505 | | -1.027 | 0.953 |
| YEAR6 | -2.537 | 0.521 | * | -3.559 | -1.515 |
| SEX | -0.337 | 0.082 | * | -0.498 | -0.177 |
| NONUK | -1.711 | 0.730 | * | -3.143 | -0.279 |
| SEN | -15.590 | 0.560 | * | -16.688 | -14.492 |
| FSM | -4.330 | 0.189 | * | -4.700 | -3.960 |
| STAGE | 1.946 | 0.123 | * | 1.705 | 2.187 |
| ETHNIC2 | -1.407 | 0.467 | * | -2.323 | -0.491 |
| ETHNIC3 | 0.713 | 0.648 | | -0.556 | 1.982 |
| ETHNIC4 | 1.082 | 0.827 | | -0.539 | 2.703 |
| ETHNIC5 | 3.254 | 0.490 | * | 2.293 | 4.215 |
| ETHNIC6 | 0.683 | 0.481 | | -0.259 | 1.626 |
| ETHNIC7 | 1.333 | 0.553 | * | 0.249 | 2.417 |
| ETHNIC8 | 8.409 | 1.190 | * | 6.077 | 10.741 |
| VOLUNT | 1.950 | 0.799 | * | 0.383 | 3.517 |
| PFSM | -0.077 | 0.018 | * | -0.113 | -0.041 |
| PPTR | -0.362 | 0.096 | * | -0.549 | -0.174 |
| SEXINT | -0.194 | 0.067 | * | -0.325 | -0.063 |
| OSCORINT | -0.029 | 0.003 | * | -0.034 | -0.024 |
| VOLINT | 1.699 | 0.284 | * | 1.143 | 2.255 |
| HTINT2 | 0.029 | 0.010 | * | 0.010 | 0.048 |
| HTINT3 | 0.025 | 0.010 | * | 0.006 | 0.044 |
| CLASS | 0.462 | 0.162 | * | 0.144 | 0.780 |
| CLASSSQ | 0.015 | 0.003 | * | 0.008 | 0.021 |

## Table 4: Detailed Results of Multilevel Analysis of Mental Test Score for All Year groups

| | | | | 95% Confidence interval | |
|---|---|---|---|---|---|
| **Parameter** | **Estimate** | **Standard error** | **Sig.** | **Min.** | **Max.** |
| **Base case** | | | | | |
| LEA variance | 2.101 | 1.423 | | -0.688 | 4.890 |
| School variance | 17.840 | 2.308 | * | 13.316 | 22.364 |
| Year variance | 6.552 | 0.835 | * | 4.915 | 8.189 |
| Pupil variance | 139.600 | 1.636 | * | 136.393 | 142.807 |
| Round variance | 84.040 | 0.598 | * | 82.868 | 85.212 |
| **Final model** | | | | | |
| LEA variance | 0.000 | 0.000 | | 0.000 | 0.000 |
| LEA slope covar. | 0.000 | 0.000 | | 0.000 | 0.000 |
| LEA slope var. | 0.053 | 0.252 | | -0.441 | 0.547 |
| School variance | 12.700 | 2.300 | * | 8.192 | 17.208 |
| School slope covar. | -1.219 | 1.013 | | -3.204 | 0.766 |
| School slope var. | 7.870 | 0.940 | * | 6.028 | 9.712 |
| Year variance | 20.540 | 1.858 | * | 16.898 | 24.182 |
| Pupil variance | 121.900 | 1.411 | * | 119.134 | 124.666 |
| Round variance | 68.710 | 0.490 | * | 67.749 | 69.671 |
| **Fixed coefficients** | | | | | |
| CONS | 77.760 | 3.257 | * | 71.376 | 84.144 |
| ROUND2 | 3.888 | 0.084 | * | 3.724 | 4.052 |
| ROUND3 | 6.974 | 0.231 | * | 6.522 | 7.426 |
| YEAR4 | -0.114 | 0.517 | | -1.128 | 0.900 |
| YEAR6 | -1.032 | 0.534 | | -2.078 | 0.014 |
| SEX | -0.719 | 0.081 | * | -0.878 | -0.559 |
| NONUK | -2.242 | 0.733 | * | -3.678 | -0.806 |
| SEN | -16.090 | 0.559 | * | -17.185 | -14.995 |
| FSM | -3.823 | 0.188 | * | -4.191 | -3.455 |
| STAGE | 2.013 | 0.123 | * | 1.771 | 2.255 |
| ETHNIC2 | -0.326 | 0.466 | | -1.238 | 0.587 |
| ETHNIC3 | 1.587 | 0.645 | * | 0.322 | 2.852 |
| ETHNIC4 | 1.337 | 0.824 | | -0.278 | 2.952 |
| ETHNIC5 | 3.390 | 0.489 | * | 2.431 | 4.349 |
| ETHNIC6 | 1.139 | 0.484 | * | 0.190 | 2.088 |
| ETHNIC7 | 1.053 | 0.553 | | -0.032 | 2.138 |
| ETHNIC8 | 6.813 | 1.182 | * | 4.496 | 9.130 |
| VOLUNT | 1.706 | 0.793 | * | 0.152 | 3.260 |
| PSEN | -0.036 | 0.032 | | -0.099 | 0.026 |
| PNENG | -0.028 | 0.014 | * | -0.056 | 0.000 |
| PFSM | -0.070 | 0.021 | * | -0.110 | -0.030 |
| PPTR | -0.410 | 0.096 | * | -0.599 | -0.221 |
| PUNQUAL | 0.209 | 0.120 | | -0.026 | 0.443 |
| OSCORINT | -0.014 | 0.004 | * | -0.021 | -0.007 |
| CLASS | 0.369 | 0.162 | * | 0.053 | 0.686 |
| CLASSSQ | 0.016 | 0.003 | * | 0.009 | 0.022 |

## Table 5: Detailed Results of Multilevel Analysis of Overall Test Score for All Year groups

| | | | | 95% Confidence interval | |
|---|---|---|---|---|---|
| **Parameter** | **Estimate** | **Standard error** | **Sig.** | **Min.** | **Max.** |
| **Base case** | | | | | |
| LEA variance | 2.113 | 1.490 | | -0.807 | 5.033 |
| School variance | 20.530 | 2.559 | * | 15.514 | 25.546 |
| Year variance | 5.734 | 0.785 | * | 4.196 | 7.272 |
| Pupil variance | 159.500 | 1.693 | * | 156.182 | 162.818 |
| Round variance | 50.480 | 0.360 | * | 49.774 | 51.186 |
| **Final model** | | | | | |
| LEA variance | 0.000 | 0.000 | | 0.000 | 0.000 |
| LEA slope covar. | 0.000 | 0.000 | | 0.000 | 0.000 |
| LEA slope var. | 0.000 | 0.000 | | 0.000 | 0.000 |
| School variance | 13.800 | 2.420 | * | 9.057 | 18.543 |
| School slope covar. | -0.571 | 0.958 | | -2.449 | 1.307 |
| School slope var. | 7.123 | 0.784 | * | 5.586 | 8.660 |
| Year variance | 20.840 | 1.894 | * | 17.128 | 24.552 |
| Pupil variance | 139.900 | 1.458 | * | 137.042 | 142.758 |
| Round variance | 37.320 | 0.267 | * | 36.796 | 37.844 |
| **Fixed coefficients** | | | | | |
| CONS | 61.460 | 13.560 | * | 34.882 | 88.038 |
| ROUND2 | 3.929 | 0.062 | * | 3.807 | 4.051 |
| ROUND3 | 6.215 | 0.203 | * | 5.817 | 6.613 |
| YEAR4 | -0.273 | 0.522 | | -1.296 | 0.751 |
| YEAR6 | -2.188 | 0.539 | * | -3.244 | -1.132 |
| SEX | -0.505 | 0.083 | * | -0.667 | -0.342 |
| NONUK | -2.268 | 0.737 | * | -3.713 | -0.823 |
| SEN | -16.280 | 0.568 | * | -17.392 | -15.168 |
| FSM | -4.335 | 0.191 | * | -4.709 | -3.961 |
| STAGE | 2.046 | 0.124 | * | 1.802 | 2.290 |
| ETHNIC2 | -1.029 | 0.474 | * | -1.957 | -0.101 |
| ETHNIC3 | 1.047 | 0.656 | | -0.238 | 2.332 |
| ETHNIC4 | 1.139 | 0.837 | | -0.502 | 2.780 |
| ETHNIC5 | 3.412 | 0.497 | * | 2.438 | 4.386 |
| ETHNIC6 | 0.848 | 0.488 | | -0.108 | 1.803 |
| ETHNIC7 | 1.175 | 0.561 | * | 0.075 | 2.275 |
| ETHNIC8 | 8.064 | 1.205 | * | 5.702 | 10.426 |
| VOLUNT | 1.925 | 0.818 | * | 0.322 | 3.528 |
| KS2TIME | 0.603 | 0.550 | | -0.476 | 1.681 |
| PSEN | -0.043 | 0.032 | | -0.106 | 0.021 |
| PFSM | -0.076 | 0.020 | * | -0.114 | -0.037 |
| PPTR | -0.404 | 0.098 | * | -0.597 | -0.211 |
| SEXINT | -0.122 | 0.062 | * | -0.244 | -0.001 |
| OSCORINT | -0.041 | 0.003 | * | -0.047 | -0.035 |
| VOLINT | 1.300 | 0.265 | * | 0.780 | 1.820 |
| HTINT3 | 0.022 | 0.009 | * | 0.004 | 0.040 |
| HTINT4 | 0.017 | 0.009 | | -0.001 | 0.035 |
| CLASS | 0.443 | 0.165 | * | 0.121 | 0.766 |
| CLASSSQ | 0.016 | 0.003 | * | 0.009 | 0.022 |

## Table 6: Detailed Results of Multilevel Analysis of Overall Test Score for Year 3

| | | | | 95% Confidence interval | |
|---|---|---|---|---|---|
| **Parameter** | **Estimate** | **Standard error** | **Sig.** | **Min.** | **Max.** |
| **Base case** | | | | | |
| LEA variance | 0.258 | 1.015 | | -1.732 | 2.247 |
| School variance | 28.040 | 3.558 | * | 21.066 | 35.014 |
| Pupil variance | 152.700 | 2.922 | * | 146.973 | 158.427 |
| Round variance | 59.770 | 0.755 | * | 58.290 | 61.250 |
| **Final model** | | | | | |
| LEA variance | 0.000 | 0.000 | | 0.000 | 0.000 |
| LEA slope covar. | 0.000 | 0.000 | | 0.000 | 0.000 |
| LEA slope var. | 0.638 | 0.847 | | -1.021 | 2.298 |
| School variance | 46.920 | 5.374 | * | 36.387 | 57.453 |
| School slope covar. | -12.270 | 2.814 | * | -17.785 | -6.755 |
| School slope var. | 22.200 | 2.613 | * | 17.079 | 27.321 |
| Pupil variance | 138.100 | 2.539 | * | 133.124 | 143.076 |
| Round variance | 39.270 | 0.500 | * | 38.290 | 40.250 |
| **Fixed coefficients** | | | | | |
| CONS | 72.720 | 3.767 | * | 65.337 | 80.103 |
| ROUND2 | 5.031 | 0.113 | * | 4.811 | 5.252 |
| ROUND3 | 6.339 | 0.437 | * | 5.483 | 7.195 |
| SEX | -0.427 | 0.144 | * | -0.710 | -0.143 |
| PRIMARY | 1.052 | 0.092 | * | 0.872 | 1.232 |
| NONUK | 0.856 | 1.512 | | -2.108 | 3.820 |
| SEN | -17.570 | 1.114 | * | -19.753 | -15.387 |
| FSM | -4.237 | 0.334 | * | -4.891 | -3.583 |
| STAGE | 2.233 | 0.220 | * | 1.801 | 2.665 |
| ETHNIC2 | -2.564 | 0.840 | * | -4.210 | -0.918 |
| ETHNIC3 | 0.960 | 1.129 | | -1.253 | 3.173 |
| ETHNIC4 | -0.589 | 1.542 | | -3.611 | 2.434 |
| ETHNIC5 | 4.031 | 0.909 | * | 2.250 | 5.812 |
| ETHNIC6 | -0.632 | 0.882 | | -2.361 | 1.096 |
| ETHNIC7 | 0.158 | 0.961 | | -1.724 | 2.041 |
| ETHNIC8 | 7.886 | 2.157 | * | 3.658 | 12.114 |
| VOLUNT | 2.164 | 1.157 | | -0.104 | 4.432 |
| PFSM | -0.109 | 0.028 | * | -0.163 | -0.055 |
| PPTR | -0.509 | 0.141 | * | -0.785 | -0.233 |
| PUNQUAL | 0.285 | 0.176 | | -0.060 | 0.630 |
| SEXINT | -0.473 | 0.113 | * | -0.694 | -0.251 |
| OSCORINT | -0.065 | 0.005 | * | -0.075 | -0.054 |
| HTINT1 | 0.077 | 0.017 | * | 0.044 | 0.109 |
| CLASSSQ | 0.022 | 0.001 | * | 0.020 | 0.025 |

## Table 7: Detailed Results of Multilevel Analysis of Overall Test Score for Year 4

| | | | | 95% Confidence interval | |
|---|---|---|---|---|---|
| **Parameter** | **Estimate** | **Standard error** | **Sig.** | **Min.** | **Max.** |
| **Base case** | | | | | |
| LEA variance | 2.613 | 1.878 | | -1.068 | 6.294 |
| School variance | 25.250 | 3.211 | * | 18.956 | 31.544 |
| Pupil variance | 157.500 | 2.893 | * | 151.830 | 163.170 |
| Round variance | 52.860 | 0.647 | * | 51.592 | 54.128 |
| **Final model** | | | | | |
| LEA variance | 0.000 | 0.000 | | 0.000 | 0.000 |
| LEA slope covar. | 0.000 | 0.000 | | 0.000 | 0.000 |
| LEA slope var. | 0.000 | 0.000 | | 0.000 | 0.000 |
| School variance | 24.710 | 3.001 | * | 18.828 | 30.592 |
| School slope covar. | 1.345 | 1.679 | | -1.946 | 4.636 |
| School slope var. | 16.680 | 1.878 | * | 12.999 | 20.361 |
| Pupil variance | 142.500 | 2.518 | * | 137.565 | 147.435 |
| Round variance | 32.910 | 0.406 | * | 32.115 | 33.705 |
| **Fixed coefficients** | | | | | |
| CONS | 52.820 | 14.750 | * | 23.910 | 81.730 |
| ROUND2 | 3.305 | 0.100 | * | 3.109 | 3.501 |
| ROUND3 | 7.328 | 0.317 | * | 6.706 | 7.950 |
| SEX | -0.513 | 0.143 | * | -0.794 | -0.232 |
| PRIMARY | -0.081 | 0.127 | | -0.330 | 0.169 |
| NONUK | -4.374 | 1.217 | * | -6.759 | -1.989 |
| SEN | -15.990 | 0.948 | * | -17.847 | -14.133 |
| FSM | -4.290 | 0.328 | * | -4.933 | -3.647 |
| STAGE | 1.930 | 0.201 | * | 1.535 | 2.325 |
| ETHNIC2 | -1.111 | 0.822 | | -2.722 | 0.500 |
| ETHNIC3 | 0.268 | 1.134 | | -1.955 | 2.490 |
| ETHNIC4 | 2.444 | 1.316 | | -0.135 | 5.023 |
| ETHNIC5 | 2.713 | 0.826 | * | 1.093 | 4.333 |
| ETHNIC6 | 0.864 | 0.820 | | -0.743 | 2.472 |
| ETHNIC7 | 2.267 | 0.960 | * | 0.386 | 4.148 |
| ETHNIC8 | 5.983 | 1.888 | * | 2.283 | 9.683 |
| VOLUNT | 2.582 | 0.946 | * | 0.727 | 4.437 |
| KS2TIME | 0.898 | 0.612 | | -0.302 | 2.097 |
| PFSM | -0.049 | 0.020 | * | -0.088 | -0.010 |
| SEXINT | -0.307 | 0.101 | * | -0.505 | -0.110 |
| OSCORINT | -0.036 | 0.005 | * | -0.046 | -0.027 |
| VOLINT | 2.316 | 0.424 | * | 1.486 | 3.146 |
| HTINT2 | 0.018 | 0.015 | | -0.011 | 0.046 |
| CLASSSQ | 0.022 | 0.001 | * | 0.020 | 0.024 |
| CLASSINT | 0.162 | 0.030 | * | 0.102 | 0.221 |

## Table 8: Detailed Results of Multilevel Analysis of Overall Test Score for Year 6

| | | | | 95% Confidence interval | |
|---|---|---|---|---|---|
| **Parameter** | **Estimate** | **Standard error** | **Sig.** | **Min.** | **Max.** |
| **Base case** | | | | | |
| LEA variance | 4.496 | 2.569 | | -0.539 | 9.531 |
| School variance | 19.790 | 2.733 | * | 14.433 | 25.147 |
| Pupil variance | 167.600 | 2.979 | * | 161.761 | 173.439 |
| Round variance | 39.380 | 0.482 | * | 38.435 | 40.325 |
| **Final model** | | | | | |
| LEA variance | 2.059 | 1.861 | | -1.589 | 5.707 |
| LEA slope covar. | -1.306 | 0.918 | | -3.105 | 0.493 |
| LEA slope var. | 0.518 | 0.685 | | -0.824 | 1.861 |
| School variance | 31.380 | 3.948 | * | 23.642 | 39.118 |
| School slope covar. | -2.578 | 1.930 | | -6.361 | 1.205 |
| School slope var. | 15.510 | 1.858 | * | 11.868 | 19.152 |
| Pupil variance | 140.500 | 2.462 | * | 135.674 | 145.326 |
| Round variance | 27.510 | 0.339 | * | 26.845 | 28.175 |
| **Fixed coefficients** | | | | | |
| CONS | 42.140 | 17.520 | * | 7.801 | 76.479 |
| ROUND2 | 3.571 | 0.091 | * | 3.392 | 3.750 |
| ROUND3 | 5.199 | 0.379 | * | 4.455 | 5.943 |
| SEX | -0.617 | 0.142 | * | -0.894 | -0.339 |
| PRIMARY | 0.084 | 0.102 | | -0.117 | 0.284 |
| NONUK | -0.495 | 1.225 | | -2.896 | 1.906 |
| SEN | -15.150 | 0.909 | * | -16.931 | -13.369 |
| FSM | -4.329 | 0.328 | * | -4.973 | -3.685 |
| STAGE | 1.866 | 0.227 | * | 1.421 | 2.311 |
| ETHNIC2 | 0.435 | 0.781 | | -1.096 | 1.967 |
| ETHNIC3 | 2.039 | 1.124 | | -0.164 | 4.242 |
| ETHNIC4 | 1.412 | 1.511 | | -1.550 | 4.374 |
| ETHNIC5 | 3.499 | 0.833 | * | 1.866 | 5.132 |
| ETHNIC6 | 2.111 | 0.798 | * | 0.548 | 3.674 |
| ETHNIC7 | 1.660 | 0.950 | | -0.202 | 3.522 |
| ETHNIC8 | 11.300 | 2.264 | * | 6.863 | 15.737 |
| KS2TIME | 0.780 | 0.711 | | -0.613 | 2.173 |
| PSEN | -0.075 | 0.043 | | -0.159 | 0.010 |
| PFSM | -0.078 | 0.026 | * | -0.130 | -0.027 |
| PPTR | -0.380 | 0.132 | * | -0.639 | -0.120 |
| SEXINT | 0.320 | 0.092 | * | 0.140 | 0.501 |
| OSCORINT | -0.028 | 0.005 | * | -0.037 | -0.018 |
| HTINT1 | 0.041 | 0.013 | * | 0.015 | 0.067 |
| HTINT2 | 0.038 | 0.013 | * | 0.011 | 0.064 |
| CLASS | 1.372 | 0.049 | * | 1.276 | 1.468 |
| CLASSINT | 0.119 | 0.028 | * | 0.064 | 0.175 |

## Cohort 2 (Entry and Progress)

### Summary


- There is a statistically significant increase in age-standardised test scores between Round 1 (entry) and Round 2 (progress) testing. This applies to all three test scores and all year groups.

- The variables with apparently positive relationships with test score are stage of English fluency, being a voluntary aided or controlled school, and class size. Background variables with apparently negative relationships with test scores include sex (girls having lower scores than boys, on average), SEN level, eligibility for free school meals and percentage eligible for free school meals.

- Looking at interaction terms, it seems that progress from Round 1 to Round 2 is positively related to class size, and negatively to sex (girls make on average less progress than boys) and original score.

- Considering year groups separately, in general the same relationships as above were found, with some minor variations.

- In all cases, there was a significant apparent impact of Project schools against Control schools. An attempt to allow for apparent 'contamination' of the Control schools by Numeracy Project ideas made little or no difference to this finding.


### The Model for Cohort 2

The second round of data collection for Cohort 2 of the National Numeracy Project included background data, and baseline and progress scores for pupils in Years 2, 3 and 5. The following types of data were collected:

- Raw and standardised scores on mathematics tests at entry and at the end of the academic year (different tests for each Year);
- Pupil background data;
- School background data;
- School-level data on factors such as time devoted to mathematics etc.

Table 9 contains details of all the variables derived from the data collection exercise which were used in this phase of multilevel analysis. The aim of the analysis was to investigate factors at the school and pupil levels which might be associated with mathematics scores, and to see which were apparently statistically significant. It was also possible to carry out an analysis of progress, making use of the fact that standardised scores were available at two different time-points for most pupils. This analysis depends critically, of course, on the assumption that the standardisations were carried out in a comparable fashion at the two time-points.

In addition to the normal school and pupil background data, results from questionnaires to headteachers were available, in the form of factor scores representing the perceived usefulness of various aspects of the Project. These were included to investigate any apparent relationships with progress.

Also included in the analysis was comparable data from a Control Group of schools to allow investigation of the impact of the Project. The Control Group data consisted of raw and standardised scores, pupil background data, school background data and school-level factors, as in the Project, for pupils in Years 2, 3 and 5.

**Results of Multilevel Analysis**

Tables 11 to 16 show some of the detailed results of the multilevel model fitting to various datasets: all years combined for each of three outcomes, and Years 2, 3 and 5 for overall score only. In technical language, these tables show the random variances at each level at each stage of model fitting, plus the coefficients of the background variables in the 'full model'. They also show whether or not variances or coefficients are statistically significant at the 5% level, as well as 95% confidence intervals for each parameter.

These tables, although they show the full results of all the modelling carried out at this stage, may not be easy to interpret for all readers. To help with this, therefore, the coefficients which express the estimated relationships between test scores and each of the background variables have been converted into 'effect sizes' which represent the 'strength' of each relationship as a percentage, and which allow the different variables to be compared in terms of their apparent influence on the test outcome, when all other variables are simultaneously taken into account.

Effect sizes are plotted in Figures 16 to 21, for the six different models described in Tables 11 to 16. For each variable, the estimated effect size is plotted as a diamond, with a vertical line indicating the 95% confidence interval for the estimate. Any variable whose line intersects the horizontal zero axis can be regarded as not statistically significant (at the 5% level). Positive values imply a positive relationship with the test score outcome; negative values imply that test score tend to decrease with higher values of the given background variable.

The way in which these models have been set up means that most of the effects relate to overall performance in various aspects of mathematics, over both testing periods. Thus the strong positive relationship with stage of English fluency implies that mathematics scores as a whole are related to this factor, but does not tell us anything about progress from one time point to another. To measure the latter, we need to include 'interaction terms' in the model, which relate background factors to changes over time in scores.

Ten such 'interaction terms' were included in the model, to look at the relationships between background variables (including headteacher questionnaire factors) and progress:

- **SEXINT:** Relationship between females and progress;
- **OSCORINT:** Relationship between overall score on entry and progress;
- **MAT1INT:** Relationship between time dedicated to mathematics at KS1 and progress;
- **MAT2INT:** Relationship between time dedicated to mathematics at KS2 and progress;
- **VOLINT:** Relationship between voluntary sector schools and progress;
- **HTINT1:** Relationship between usefulness of the 5-day course and progress;
- **HTINT2:** Relationship between usefulness of the consultancy and progress;
- **HTINT3:** Relationship between usefulness of the framework and internal audit and progress;
- **HTINT4:** Relationship between usefulness of the project materials and progress;
- **CLASSINT:** Relationship between class size and progress.

The interpretation of the model results for these variables is straightforward. If, for example, the coefficient of SEXINT is negative, this implies that girls are making less progress than boys on average. A positive coefficient for VOLINT would imply that pupils in voluntary

schools are making more progress than others, and so forth. Note that we would expect a negative coefficient for OSCORINT, as this implies that those starting from a higher score are likely to make less progress on average.

In order to evaluate the effect of the Project, extra variables were included in the model, (INNP1, INNP2 and INNP3). INNP1 describes the apparent impact of the Project compared to the Control Group by assigning the value 1 to the Project and 0 to the Control group at the second round. INNP2 and INNP3 try to allow for contamination of Control Group schools based on a headteacher proforma. This proforma asked schools whether they possessed any Project materials or had attended any Project courses. INNP2 and INNP3 evaluate the responses to these questions by assigning a 'scale of contamination' to the Control Group schools.

**Figure 16: Effect Sizes from Multilevel Model fitted to Written Test Scores for All Year Groups**

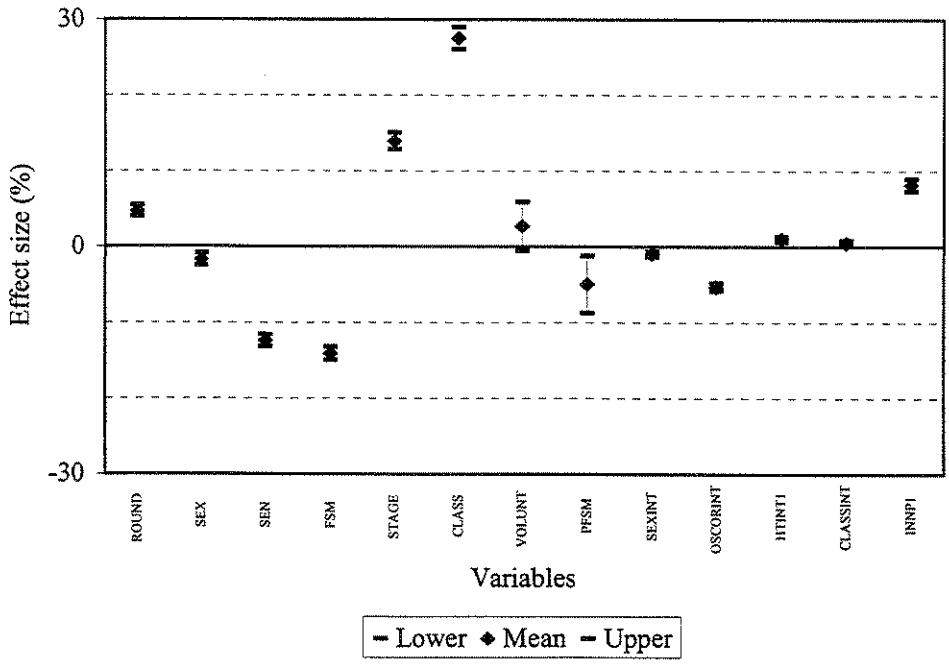


**Figure 17: Effect Sizes from Multilevel Model fitted to Mental Test Scores for All Year Groups**

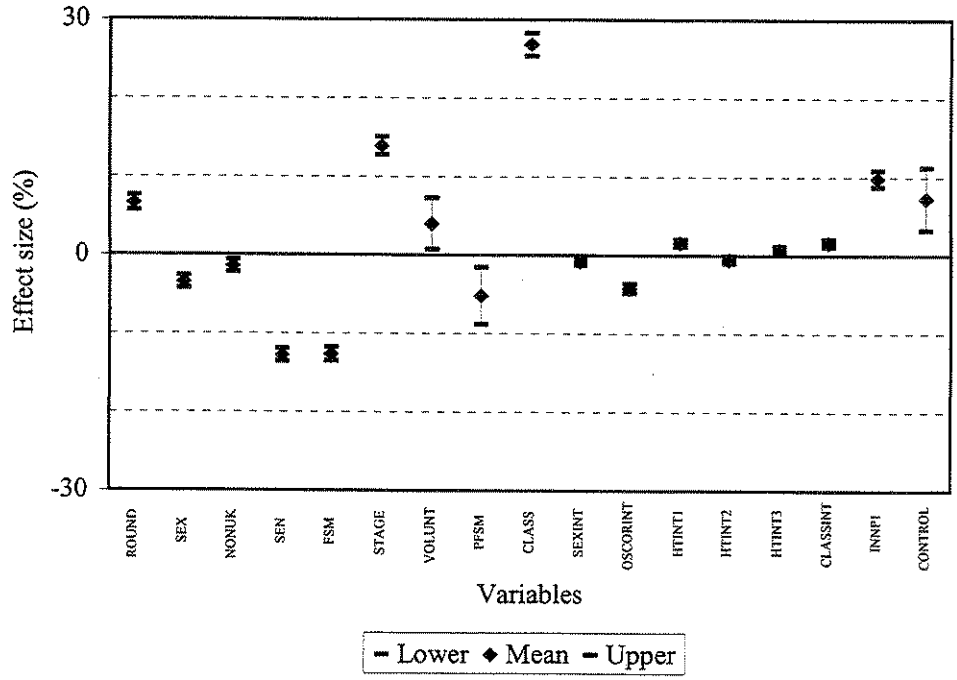
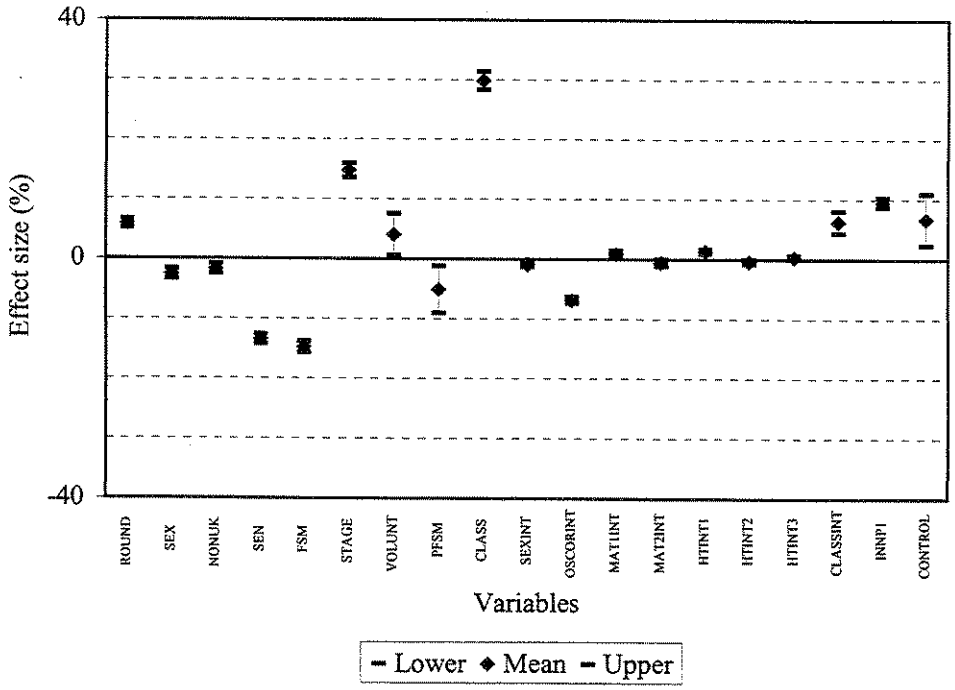



**Figure 18: Effect Sizes from Multilevel Model fitted to Overall Test Scores for All Year Groups**



In Figures 16 to 18, above, it is clear that the variables with apparently positive relationships with test score are round of testing (with significantly higher age-standardised scores in Round 2 compared with Round 1), stage of English fluency, being a voluntary aided or controlled school and class size. Background variables with apparently negative relationships with test scores include sex (girls having lower scores than boys, on average), SEN level, eligibility for free school meals and percentage eligible for free school meals.

Looking at interaction terms, it seems that progress from Round 1 to Round 2 is positively related to class size, and negatively to sex (girls make on average less progress than boys), and original score. Factors 1 (5-day course) and 3 (framework & internal audit) from the headteacher questionnaire were overall positively related to progress in mental and overall scores. Factor 1 was positively related to progress in written scores.

Some of the relationships displayed here will be intuitively reasonable, and others may be less so. Some may be artefacts, or produced through a relationship with a third factor not included in the model. The other three figures, for Years 2 to 5, will show some of the same patterns and some which are different.

**Figure 19: Effect Sizes from Multilevel Model fitted to Overall Test Scores for Year 2**

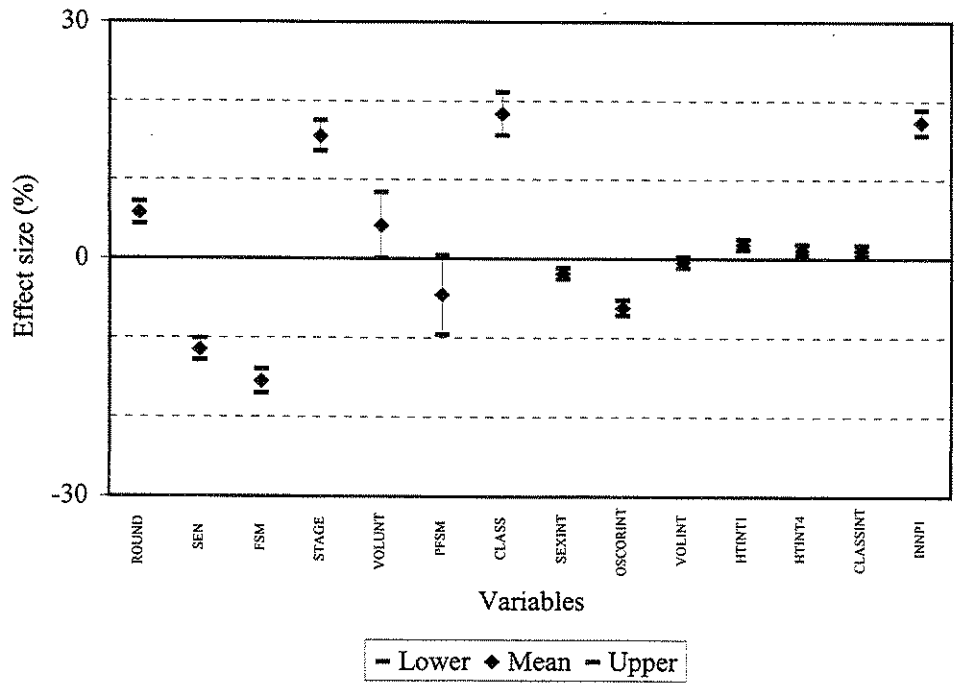


**Figure 20: Effect Sizes from Multilevel Model fitted to Overall Test Scores for Year 3**

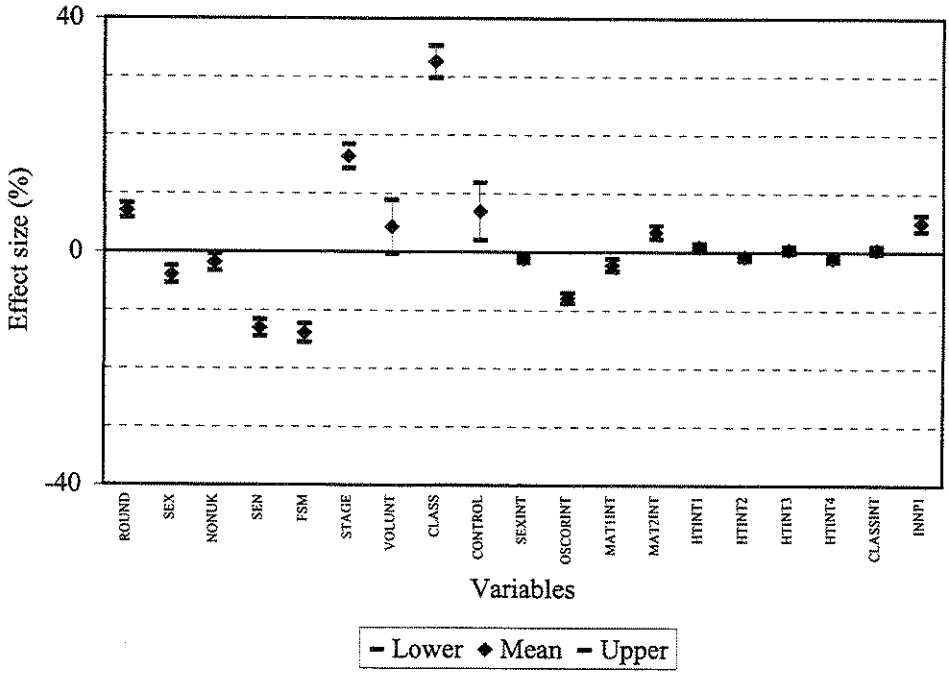
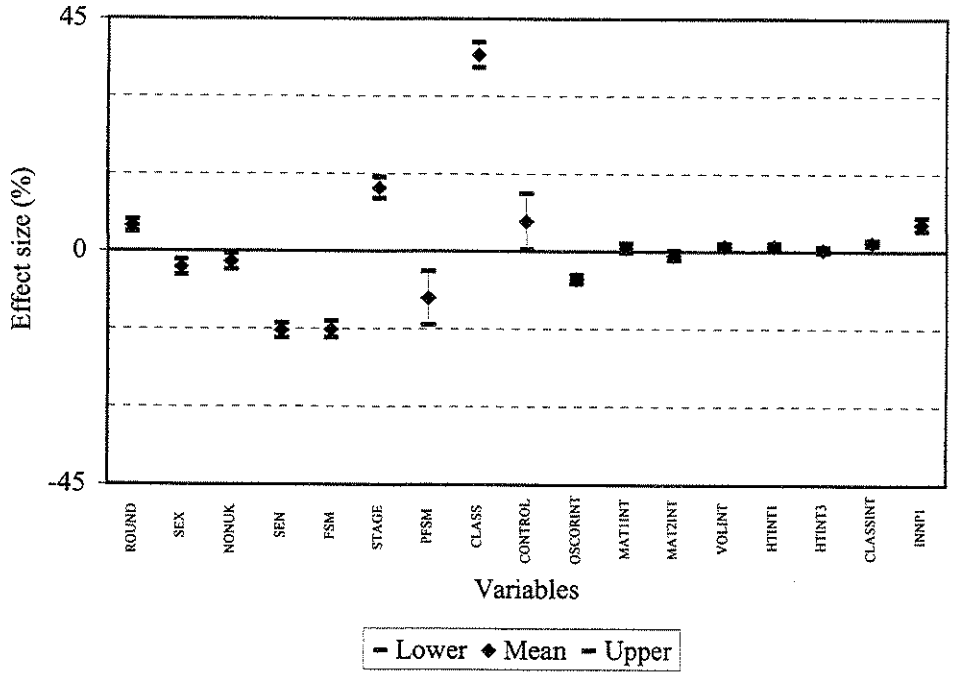



**Figure 21: Effect Sizes from Multilevel Model fitted to Overall Test Scores for Year 5**



In addition to the relationships between test scores and a host of background variables described above, the multilevel model provides other information. In particular, it estimates the amount of variation in test scores which can be attributed to different levels in the model. The unified model had five levels: LEA, school, cohort and pupil, and there will in general be measurable differences in average test scores between units at each level. The amount of variation at each level is measured by the 'variance' (basically the square of the standard deviation) at that level, and may change as extra background variables are fitted to the model. For example, some of the differences between schools in average test scores may be eliminated when we take into account school-level variables such as percentage eligible for free school meals.

The model allows us to estimate for each school or LEA a 'residual', which is the amount by which its results differ from what might have been expected, given all the pupil and school background data. Figures 22 to 25 show the residuals for all the LEAs with schools in the project for overall test score, for all year groups combined and for Years 2, 3 and 5 separately. The plots indicate by a vertical line the 95% confidence interval for each LEA's residual value. Only those LEAs whose lines do not intersect the horizontal zero axis might be regarded as having results significantly different from expected.

**Figure 22: Adjusted LEA Residuals (Overall Score) for Cohort 2, All Year Groups, showing 95% confidence intervals**

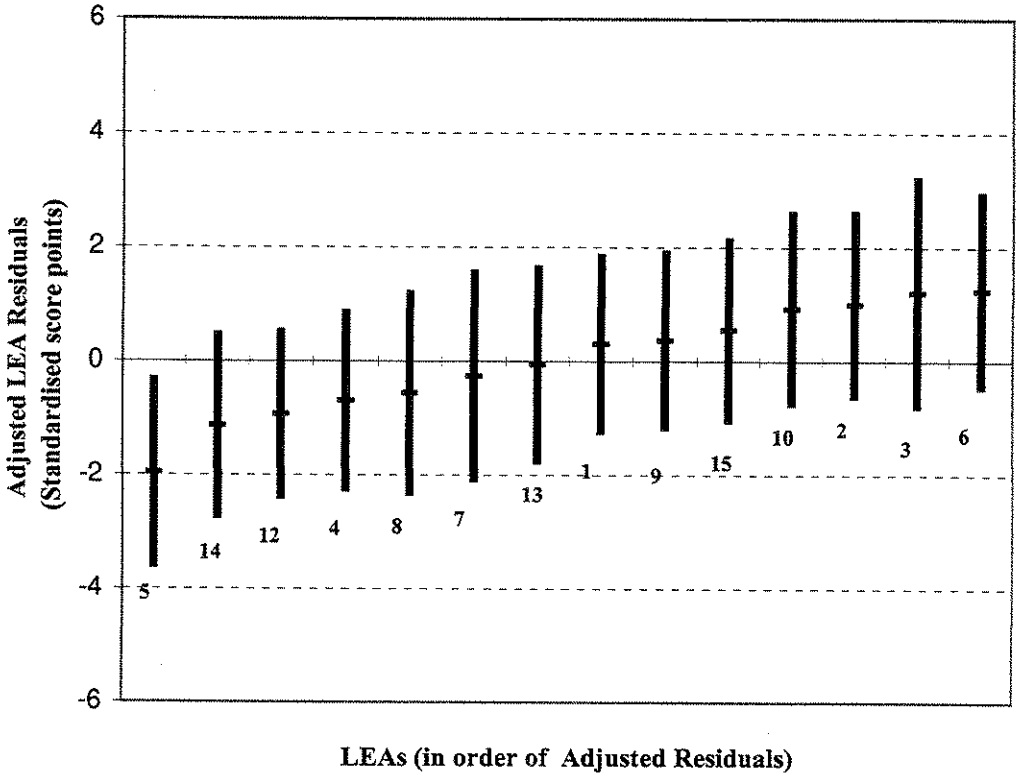



**Figure 23: Adjusted LEA Residuals (Overall Score) for Cohort 2 Year 2, showing 95% confidence intervals**

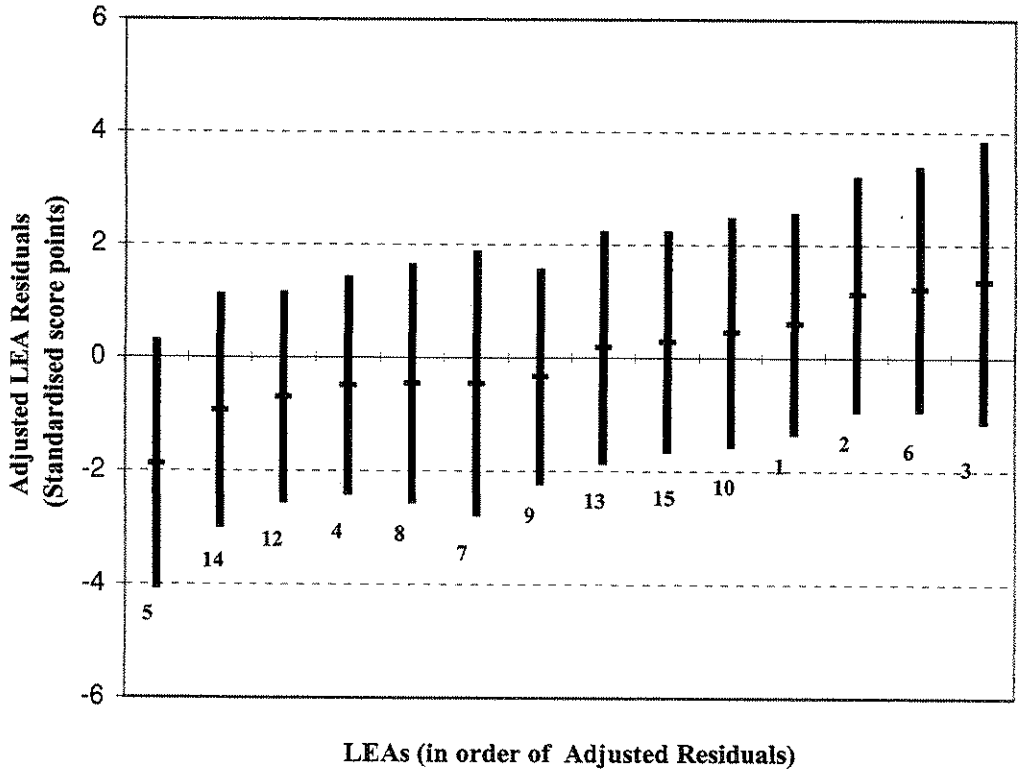


**Figure 24: Adjusted LEA Residuals (Overall Score) for Cohort 2 Year 3, showing 95% confidence intervals**

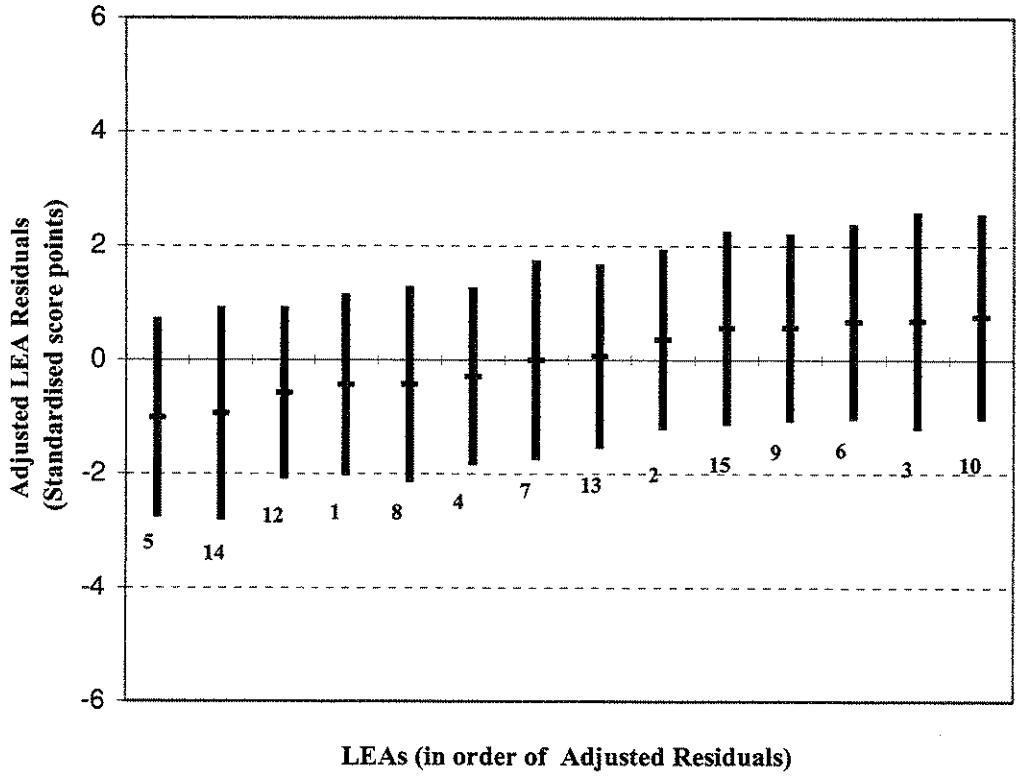
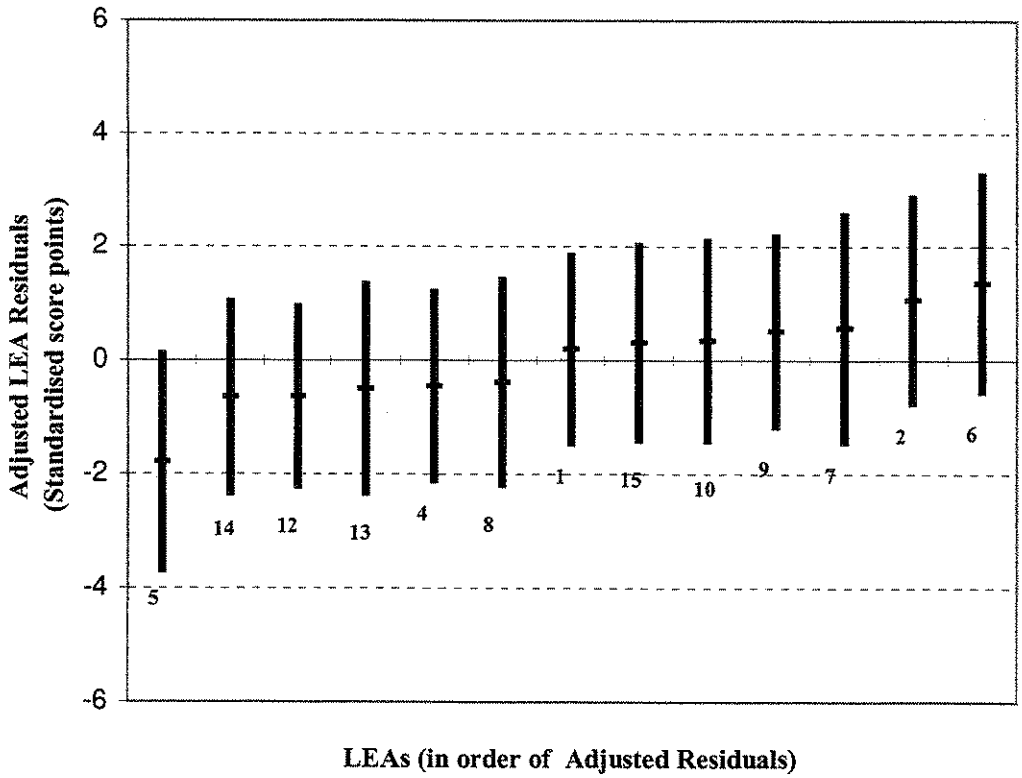



**Figure 25: Adjusted LEA Residuals (Overall Score) for Cohort 2 Year 5, showing 95% confidence intervals**



The above plots indicate how LEA results relate to the overall project, **in terms of overall performance averaged over both rounds of testing**, and controlling for a range of background factors. What is also of interest is the amount of progress made between rounds 1 and 2. This can be assessed for each LEA by means of a 'random slopes' multilevel model, in which it is assumed that the amount of progress between rounds of testing varies from school to school and from LEA to LEA. The estimated progress measures for the LEAs and their standard errors can be estimated, **in terms of the average change in standardised score from Round 1 to Round 2**, controlling for other factors. These progress measures are plotted in Figures 26 to 29, for all year groups combined and separately for Years 2, 3 and 5.

**Figure 26: Adjusted LEA Progress Measures (Overall Score) for Cohort 2, All Year Groups, showing 95% confidence intervals**

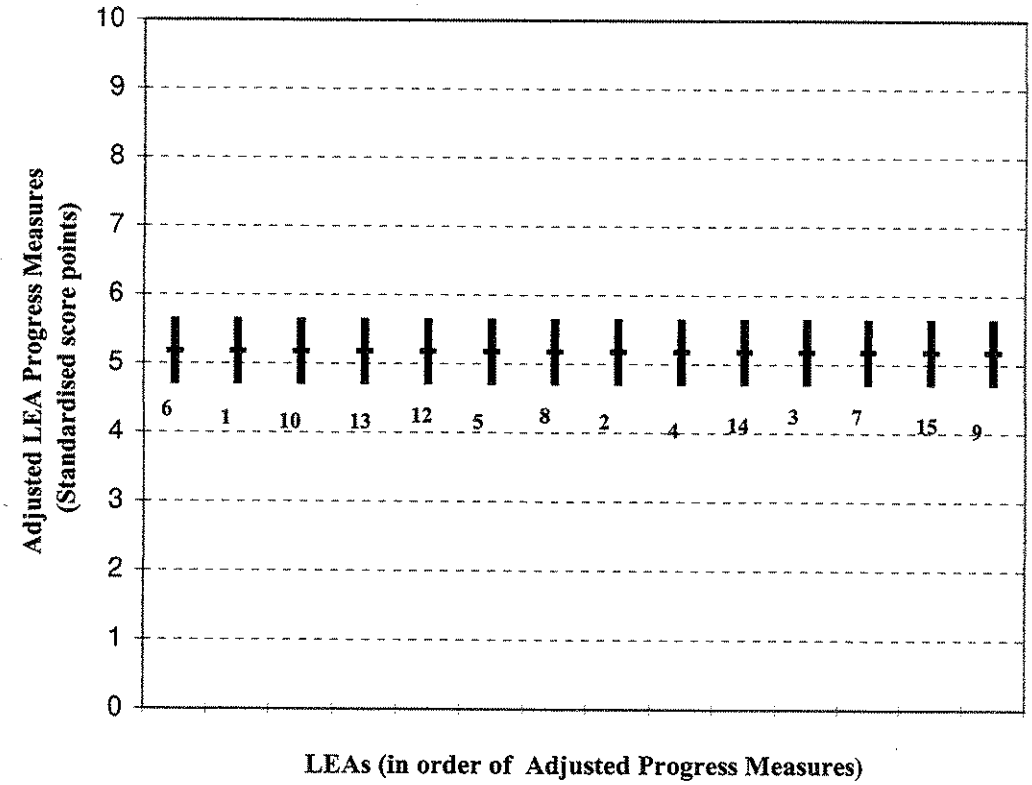


**Figure 27: Adjusted LEA Progress Measures (Overall Score) for Cohort 2 Year 2, showing 95% confidence intervals**

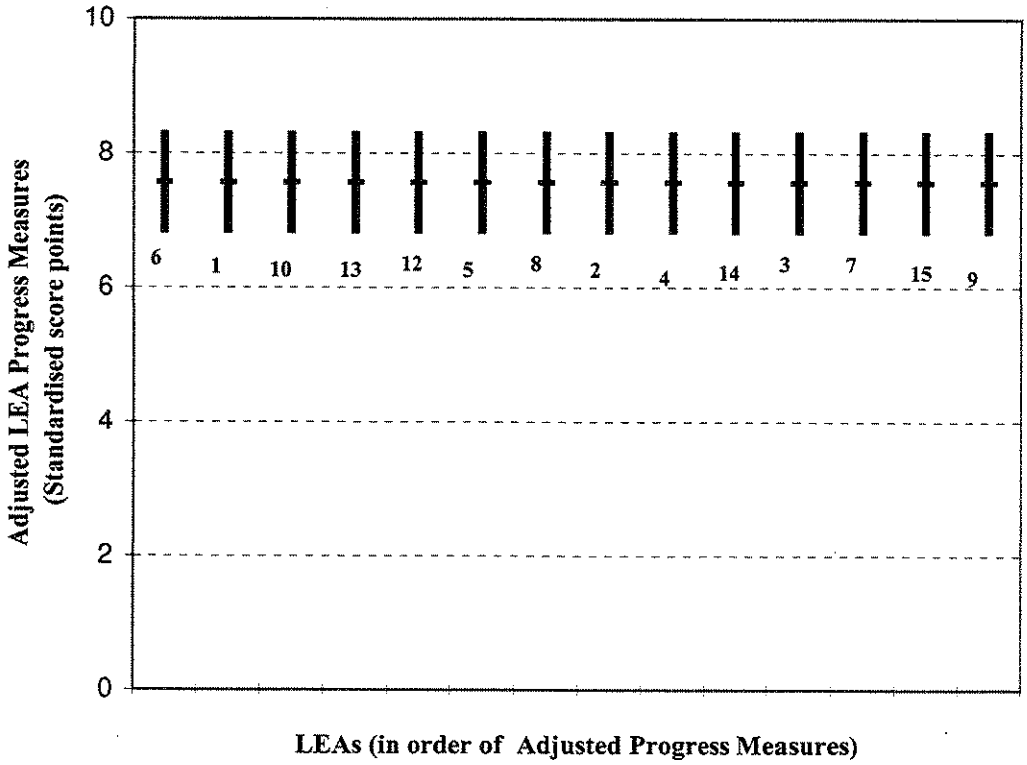



**Figure 28: Adjusted LEA Progress Measures (Overall Score) for Cohort 2 Year 3, showing 95% confidence intervals**

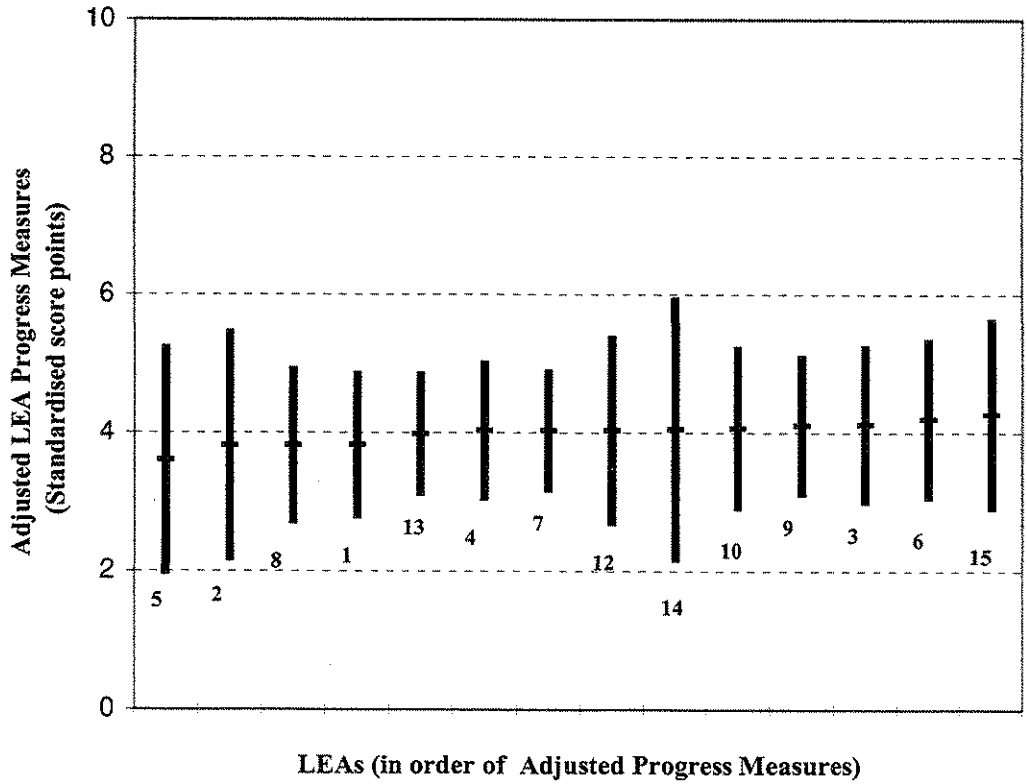


**Table 14: Detailed Results of Multilevel Analysis of Overall Test Score for Year 2**

| | | | | 95% Confidence interval | |
|---|---|---|---|---|---|
| **Parameter** | **Estimate** | **Standard error** | **Sig.** | **Min.** | **Max.** |
| **Base case** | | | | | |
| LEA variance | 3.5 | 2.064 | | -0.545 | 7.545 |
| School variance | 32.86 | 3.222 | * | 26.545 | 39.175 |
| Pupil variance | 115.9 | 2.188 | * | 111.612 | 120.188 |
| Round variance | 89.78 | 1.213 | * | 87.403 | 92.157 |
| **Final model** | | | | | |
| LEA variance | 4.475 | 2.3 | | -0.033 | 8.983 |
| School variance | 30.99 | 3.049 | * | 25.014 | 36.966 |
| Pupil variance | 120.2 | 2.011 | * | 116.258 | 124.142 |
| Round variance | 63.31 | 0.8564 | * | 61.631 | 64.989 |
| **Fixed coefficients** | | | | | |
| CONS | 70.75 | 1.896 | * | 67.034 | 74.466 |
| ROUND | 1.785 | 0.2251 | * | 1.344 | 2.226 |
| SEN | -18.08 | 1.093 | * | -20.222 | -15.938 |
| FSM | -5.084 | 0.2528 | * | -5.579 | -4.589 |
| STAGE | 2.224 | 0.1402 | * | 1.949 | 2.499 |
| VOLUNT | 1.877 | 0.9502 | * | 0.015 | 3.739 |
| PFSM | -0.0377 | 0.02105 | | -0.079 | 0.004 |
| CLASS | 0.6565 | 0.04982 | * | 0.559 | 0.754 |
| SEXINT | -0.5885 | 0.1062 | * | -0.797 | -0.380 |
| OSCORINT | -0.06535 | 0.005268 | * | -0.076 | -0.055 |
| VOLINT | -0.3952 | 0.3166 | | -1.016 | 0.225 |
| HTINT1 | 0.04881 | 0.009297 | * | 0.031 | 0.067 |
| HTINT4 | 0.03068 | 0.009389 | * | 0.012 | 0.049 |
| CLASSINT | 0.148 | 0.04959 | * | 0.051 | 0.245 |
| INNP1 | 5.445 | 0.2578 | * | 4.940 | 5.950 |

**Table 15: Detailed Results of Multilevel Analysis of Overall Test Score for Year 3**

| | | | | 95% Confidence interval | |
|---|---|---|---|---|---|
| **Parameter** | **Estimate** | **Standard error** | **Sig.** | **Min.** | **Max.** |
| **Base case** | | | | | |
| LEA variance | 4.146 | 2.093 | * | 0.044 | 8.248 |
| School variance | 26.080 | 2.700 | * | 20.788 | 31.372 |
| Pupil variance | 155.600 | 2.419 | * | 150.859 | 160.341 |
| Round variance | 54.020 | 0.757 | * | 52.535 | 55.505 |
| **Final model** | | | | | |
| LEA variance | 0.000 | 0.000 | | 0.000 | 0.000 |
| School variance | 39.750 | 3.575 | * | 32.743 | 46.757 |
| Pupil variance | 142.300 | 2.168 | * | 138.051 | 146.549 |
| Round variance | 44.190 | 0.620 | * | 42.975 | 45.405 |
| **Fixed coefficients** | | | | | |
| CONS | 53.520 | 1.670 | * | 50.247 | 56.793 |
| ROUND | 2.161 | 0.196 | * | 1.778 | 2.544 |
| SEX | -0.615 | 0.117 | * | -0.845 | -0.386 |
| NONUK | -2.561 | 1.004 | * | -4.529 | -0.593 |
| SEN | -17.430 | 0.980 | * | -19.350 | -15.510 |
| FSM | -4.543 | 0.264 | * | -5.060 | -4.026 |
| STAGE | 2.605 | 0.167 | * | 2.277 | 2.933 |
| VOLUNT | 1.891 | 1.036 | | -0.140 | 3.922 |
| CLASS | 1.157 | 0.050 | * | 1.059 | 1.255 |
| CONTROL | 2.548 | 0.918 | * | 0.750 | 4.346 |
| SEXINT | -0.361 | 0.092 | * | -0.542 | -0.181 |
| OSCORINT | -0.085 | 0.005 | * | -0.095 | -0.076 |
| MAT1INT | -0.518 | 0.126 | * | -0.765 | -0.270 |
| MAT2INT | 0.916 | 0.160 | * | 0.603 | 1.229 |
| HTINT1 | 0.025 | 0.009 | * | 0.008 | 0.042 |
| HTINT2 | -0.022 | 0.009 | * | -0.039 | -0.005 |
| HTINT3 | 0.010 | 0.008 | | -0.005 | 0.025 |
| HTINT4 | -0.029 | 0.008 | * | -0.045 | -0.013 |
| CLASSINT | 0.051 | 0.043 | | -0.034 | 0.136 |
| INNP1 | 1.574 | 0.224 | * | 1.135 | 2.013 |

**Table 16: Detailed Results of Multilevel Analysis of Overall Test Score for Year 5**

| | | | | 95% Confidence interval | |
|---|---|---|---|---|---|
| **Parameter** | **Estimate** | **Standard error** | **Sig.** | **Min.** | **Max.** |
| **Base case** | | | | | |
| LEA variance | 2.828 | 1.803 | | -0.706 | 6.362 |
| School variance | 28.56 | 2.967 | * | 22.745 | 34.375 |
| Pupil variance | 172.7 | 2.567 | * | 167.669 | 177.731 |
| Round variance | 42.68 | 0.6024 | * | 41.499 | 43.861 |
| **Final model** | | | | | |
| LEA variance | 2.374 | 1.873 | | -1.297 | 6.045 |
| School variance | 38.51 | 3.743 | * | 31.174 | 45.846 |
| Pupil variance | 147.1 | 2.19 | * | 142.808 | 151.392 |
| Round variance | 36.77 | 0.5189 | * | 35.753 | 37.787 |
| **Fixed coefficients** | | | | | |
| CONS | 57.78 | 1.793 | * | 54.266 | 61.294 |
| ROUND | 1.528 | 0.1847 | * | 1.166 | 1.890 |
| SEX | -0.4911 | 0.1189 | * | -0.724 | -0.258 |
| NONUK | -2.089 | 0.7827 | * | -3.623 | -0.555 |
| SEN | -17.29 | 0.8365 | * | -18.930 | -15.650 |
| FSM | -4.968 | 0.2726 | * | -5.502 | -4.434 |
| STAGE | 2.147 | 0.1833 | * | 1.788 | 2.506 |
| PFSM | -0.07622 | 0.02223 | * | -0.120 | -0.033 |
| CLASS | 1.224 | 0.0407 | * | 1.144 | 1.304 |
| CONTROL | 2.135 | 1.018 | * | 0.140 | 4.130 |
| OSCORINT | -0.06118 | 0.004745 | * | -0.070 | -0.052 |
| MAT1INT | 0.1675 | 0.115 | | -0.058 | 0.393 |
| MAT2INT | -0.2385 | 0.1474 | | -0.527 | 0.050 |
| VOLINT | 0.8647 | 0.2477 | * | 0.379 | 1.350 |
| HTINT1 | 0.03064 | 0.00822 | * | 0.015 | 0.047 |
| HTINT3 | 0.008028 | 0.007328 | | -0.006 | 0.022 |
| CLASSINT | 0.2146 | 0.03597 | * | 0.144 | 0.285 |
| INNP1 | 1.705 | 0.2115 | * | 1.290 | 2.120 |

## Cohort 3 (Entry)

### Summary

- The variables with apparently positive relationships with test score are stage of English fluency, various ethnic groups relative to the white population (Black African, Indian, Pakistani, Bangladeshi and Chinese), and percentage of pupils with first language not English. Background variables with apparently negative relationships with test scores include SEN level, eligibility for free school meals, Black Caribbean pupils relative to the white population, and percentage of pupils eligible for free school meals.

- Considering year groups separately, in general the same relationships as above were found, with some minor variations.

There was much more variation between pupils than between year groups, schools or LEAs. About 8% of the variation between pupils could be explained by pupil background variables, and about one-half of the variation between schools could be explained by a combination of pupil and school variables.

### The Model for Cohort 3

The first round of data collection for Cohort 3 of the National Numeracy Project included background data, and baseline scores for pupils in Years 1, 2 and 4. The following types of data were collected:

- Raw and standardised scores on mathematics tests at entry (different tests for each Year);
- Pupil background data;
- School background data;
- School-level data on factors such as time devoted to mathematics etc.

Table 17 contains details of all the variables derived from the data collection exercise which were used in this phase of multilevel analysis. The aim of the analysis was to investigate factors at the school and pupil levels which might be associated with mathematics scores, and to see which were apparently statistically significant. It was not possible to carry out a 'value-added' analysis, since no prior attainment measures were available - this type of analysis will be carried out at a later stage.

**Results of Multilevel Analysis**

Tables 19 to 24 show some of the detailed results of the multilevel model fitting to various datasets: all years combined for each of three outcomes, and Years 1, 2 and 4 for overall score only. In technical language, these tables show the random variances at each level at each stage of model fitting, plus the coefficients of the background variables in the 'full model'. They also show whether or not variances or coefficients are statistically significant at the 5% level, as well as 95% confidence intervals for each parameter.

These tables, although they show the full results of all the modelling carried out at this stage, may not be easy to interpret for all readers. To help with this, therefore, the coefficients which express the estimated relationships between test scores and each of the background variables have been converted into 'effect sizes' which represent the 'strength' of each relationship as a percentage, and which allow the different variables to be compared in terms of their apparent influence on the test outcome, when all other variables are simultaneously taken into account.

Effect sizes are plotted in Figures 30 to 35, for the six different models described in Tables 19 to 24. For each variable, the estimated effect size is plotted as a diamond, with a vertical line indicating the 95% confidence interval for the estimate. Any variable whose line intersects the horizontal zero axis can be regarded as not statistically significant (at the 5% level). Positive values imply a positive relationship with the test score outcome; negative values imply that test score tend to decrease with higher values of the given background variable.

**Figure 30: Effect Sizes from Multilevel Model fitted to Written Test Scores for All Year Groups**

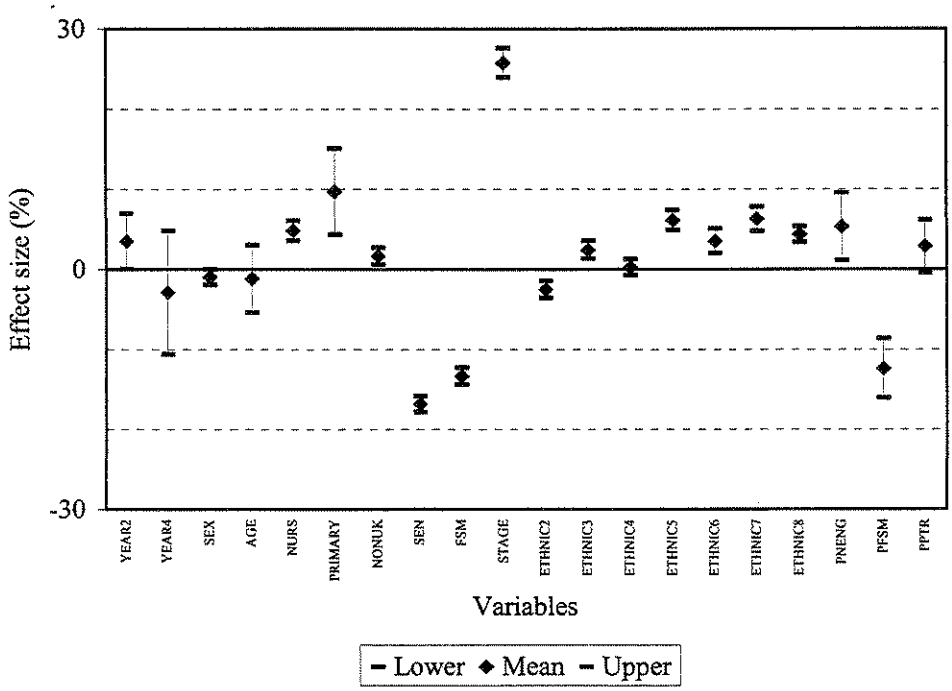



**Figure 31: Effect Sizes from Multilevel Model fitted to Mental Test Scores for All Year Groups**

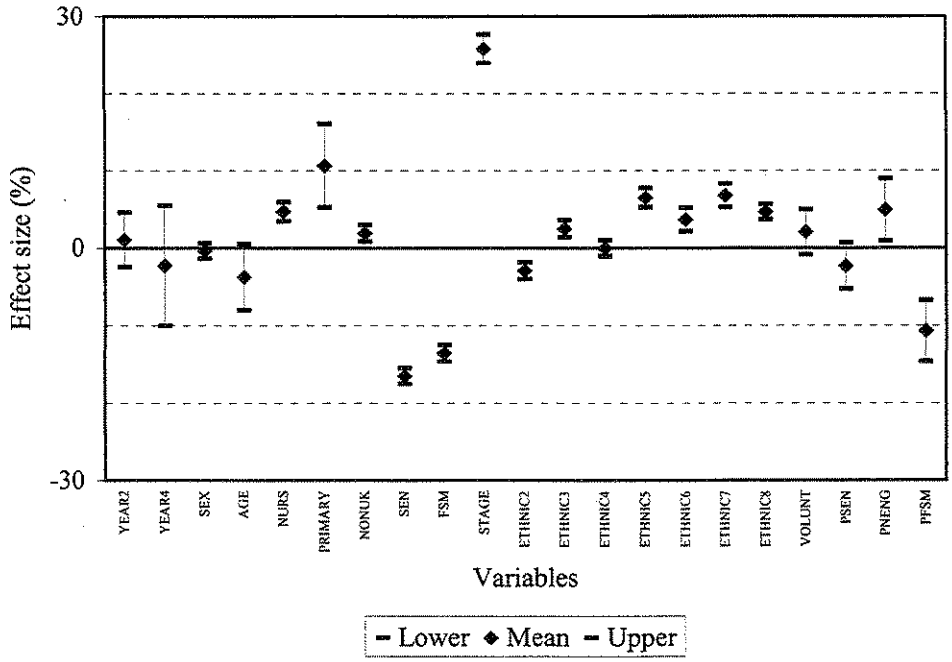
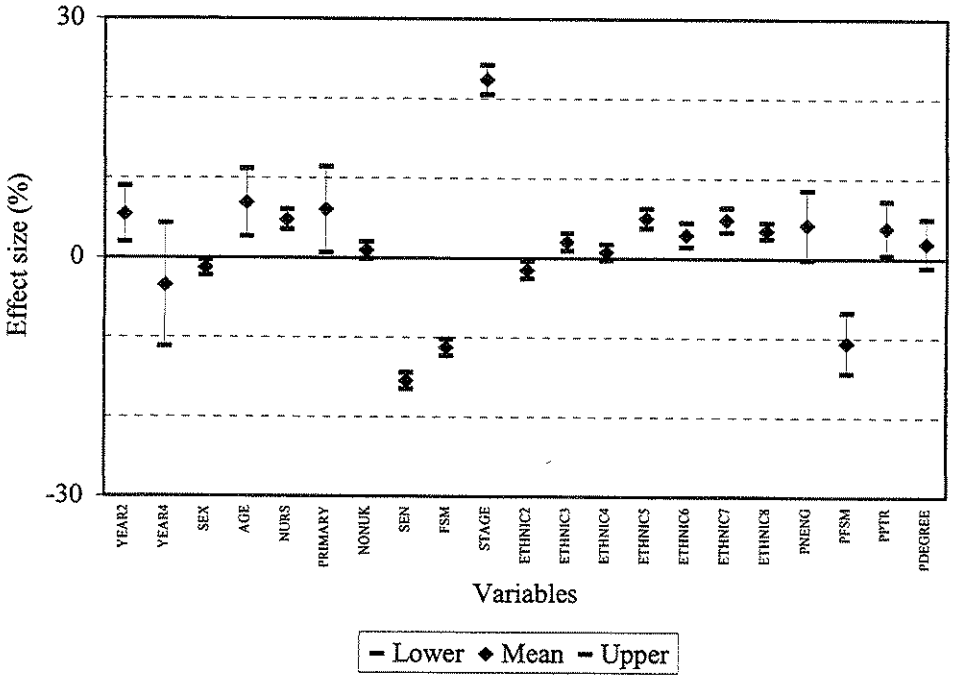


**Figure 32: Effect Sizes from Multilevel Model fitted to Overall Test Scores for All Year Groups**




In Figures 30 to 32, above, it is clear that the variables with apparently positive relationships with test score are stage of English fluency, various ethnic groups relative to the white population (Black African, Indian, Pakistani, Bangladeshi and Chinese), and percentage of pupils with first language not English. Background variables with apparently negative relationships with test scores include SEN level, eligibility for free school meals, Black Caribbean pupils relative to the white population, and percentage of pupils eligible for free school meals.

Some of the relationships displayed here will be intuitively reasonable, and others may be less so. Some may be artefacts, or produced through a relationship with a third factor not included in the model. The other three figures, for Years 1 to 4, will show some of the same patterns and some which are different.

**Figure 33: Effect Sizes from Multilevel Model fitted to Overall Test Scores for Year 1**

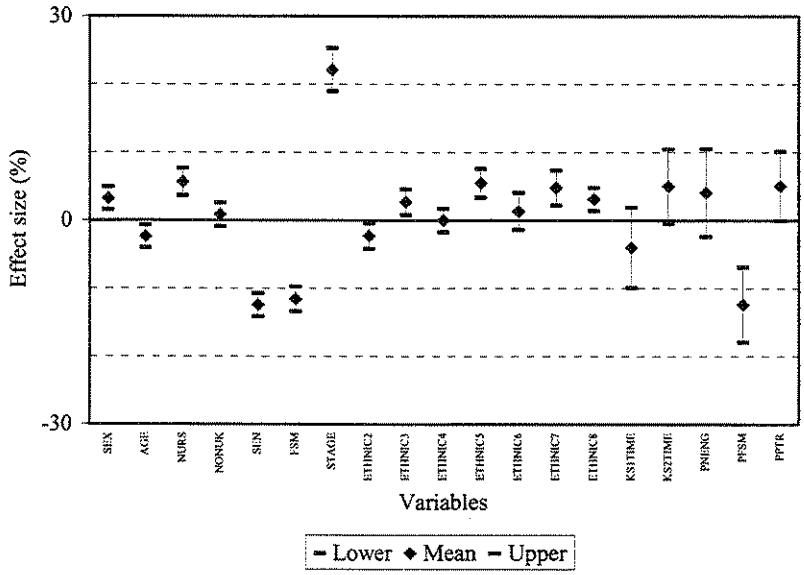



**Figure 34: Effect Sizes from Multilevel Model fitted to Overall Test Scores for Year 2**

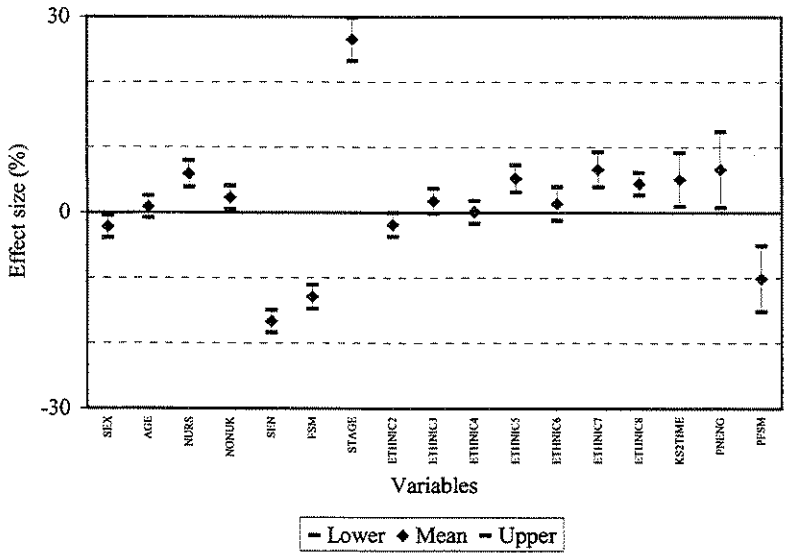
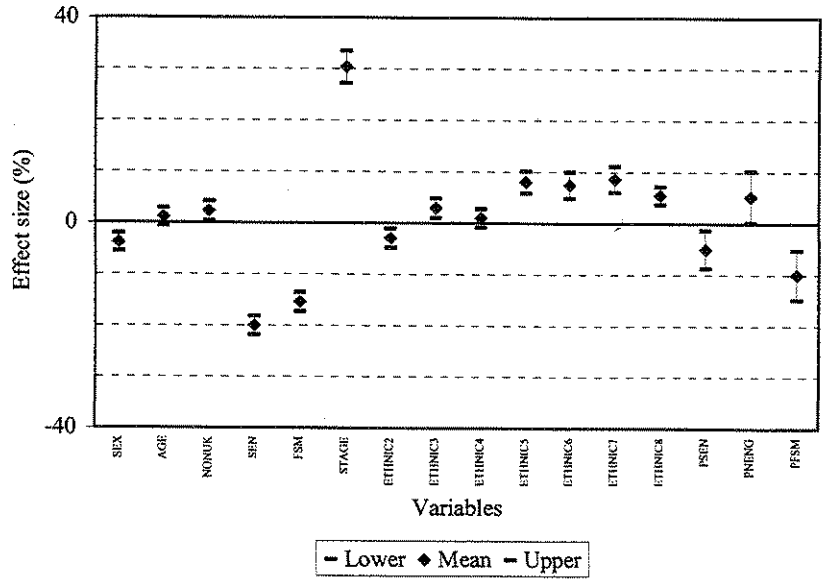


**Figure 35: Effect Sizes from Multilevel Model fitted to Overall Test Scores for Year 4**




In addition to the relationships between test scores and a host of background variables described above, the multilevel model provides other information. In particular, it estimates the amount of variation in test scores which can be attributed to different levels in the model. The unified model had four levels: LEA, school, cohort and pupil. The amount of variation at each level is measured by the 'variance' (basically the square of the standard deviation) at that level, and may change as extra background variables are fitted to the model. For example, some of the differences between schools in average test scores may be eliminated when we take into account school-level variables such as percentage eligible for free school meals.

**Figure 36: Random Variances in Overall Test Score at Different Levels for All Year Groups**

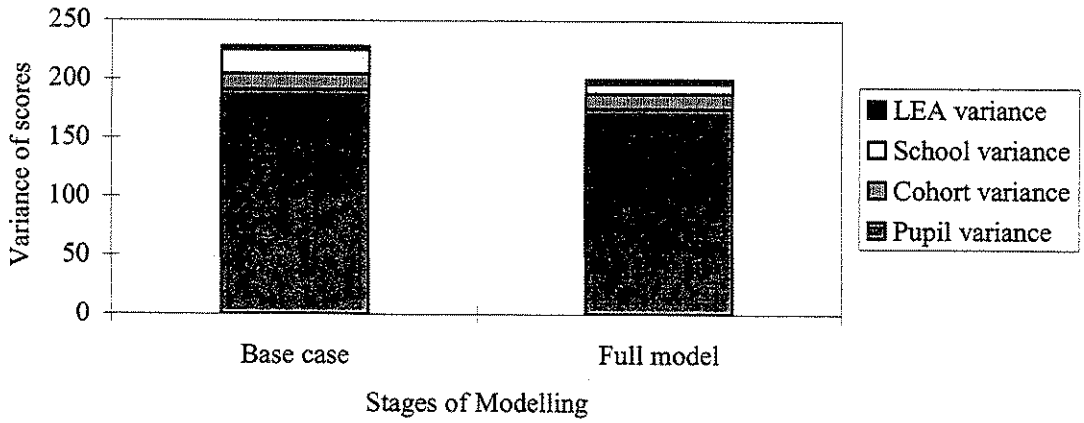


Figure 36 illustrates this effect, using the unified model fitted to all year groups. At each of the stages of modelling, the total variance is divided between the four levels in the model. For the base case, the total variance is close to the theoretical value of 225 for an age-standardised score with standard deviation 15.

It is clear from the above figure that in general the variance increases at lower levels: the greatest degree of variation is between pupils, and then between year groups, and then between schools, and lastly between LEA groups of schools. The introduction of pupil-level background variables reduces the pupil variance by about 8%, and pupil and school information together reduce school-level variance by about a half.

The model allows us to estimate for each school or LEA a 'residual', which is the amount by which its results differ from what might have been expected, given all the pupil and school background data. Figures 37 to 40 show the residuals for all the LEAs with schools in the project for overall test score, for all year groups combined and for Years 1, 2 and 4 separately. The plots indicate by a vertical line the 95% confidence interval for each LEA's residual value. Only those LEAs whose lines do not intersect the horizontal zero axis might be regarded as having results significantly different from expected.

**Figure 37: Cohort 3 – Adjusted LEA Residuals (Overall Score) for All Year Groups, showing 95% confidence intervals**

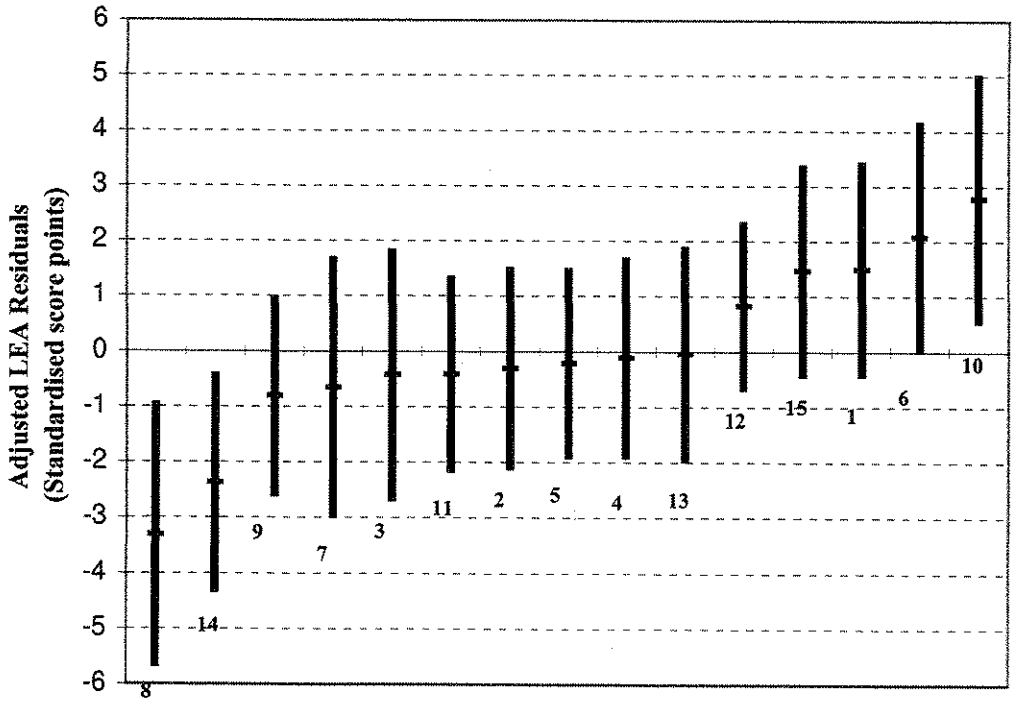


**Figure 38: Cohort 3 – Adjusted LEA Residuals (Overall Score) for Year 1, showing 95% confidence intervals**

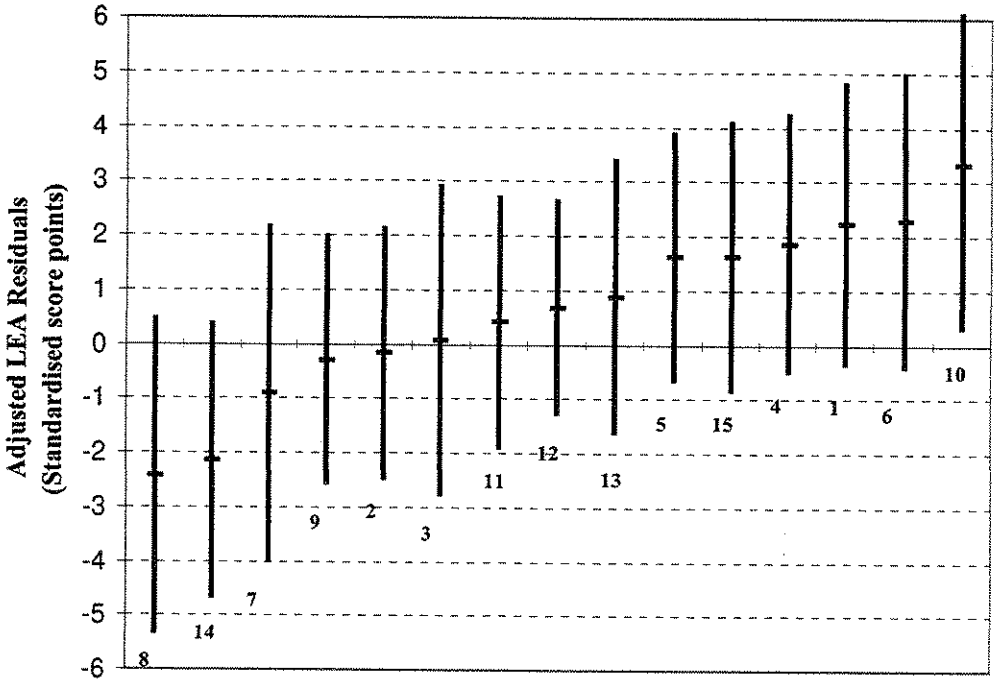



**Figure 39: Cohort 3 – Adjusted LEA Residuals (Overall Score) for Year 2, showing 95% confidence intervals**

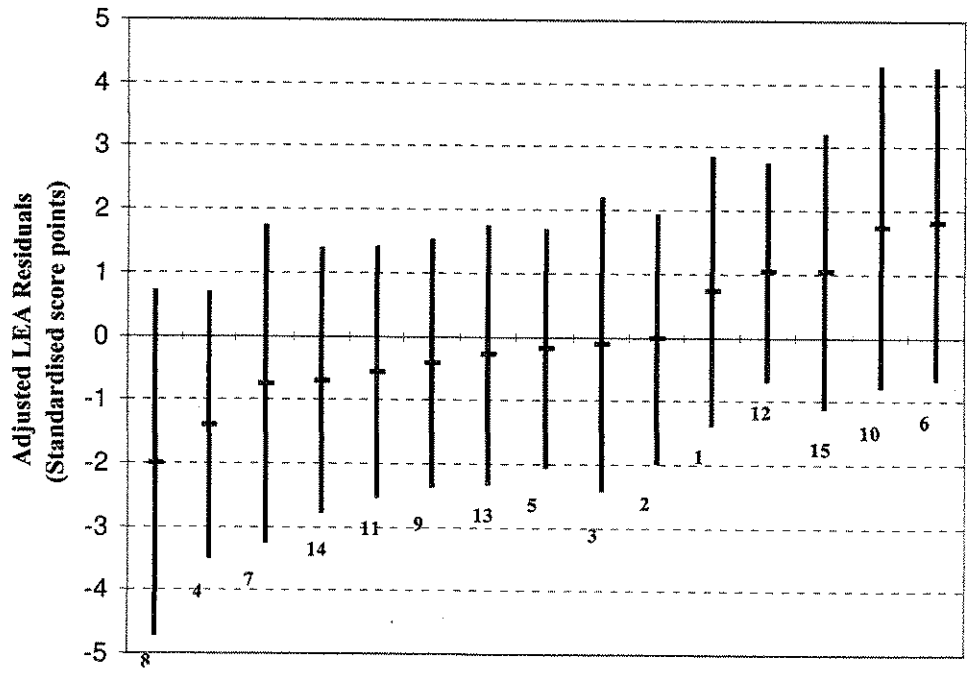


**Figure 40: Cohort 3 – Adjusted LEA Residuals (Overall Score) for Year 4, showing 95% confidence intervals**

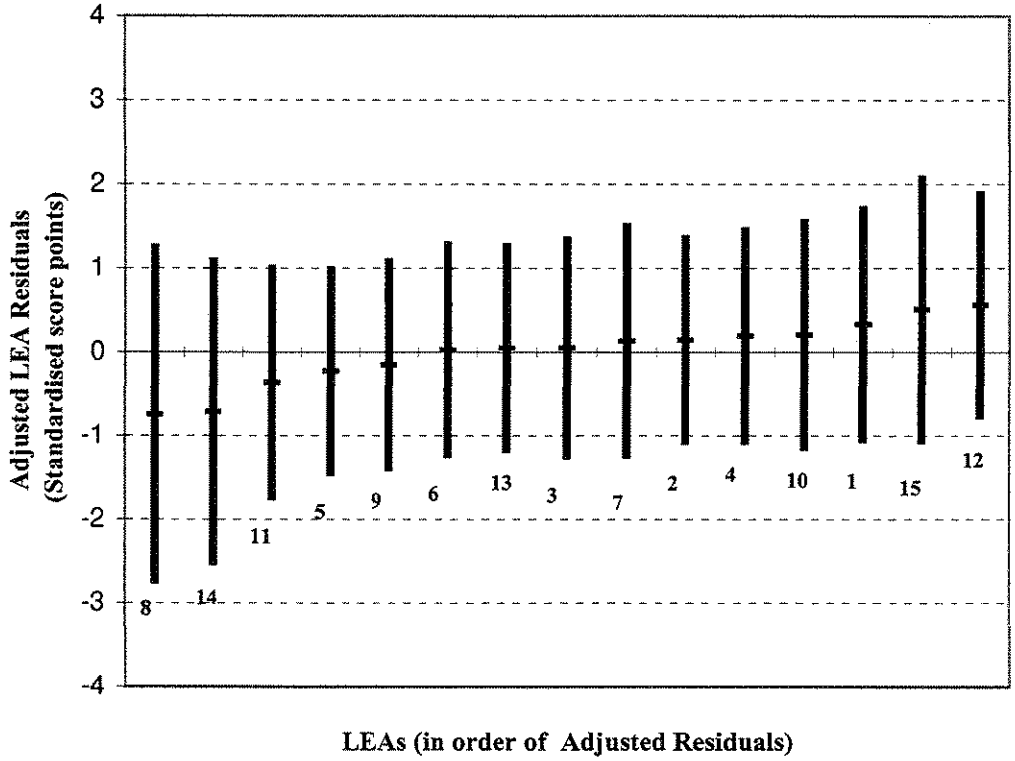


**Table 17: Details of Variables Used in Multilevel Modelling**

| | Range | | |
|---|---|---|---|
| **Name** | **Min.** | **Max.** | **Description** |
| LEA | 204 | 888 | LEA identifier |
| SCHOOL | 3 | 316 | School identifier |
| YEAR | 1 | 4 | Year Group |
| PUPILID | 1001 | 6200 | Pupil identifier |
| SWSCORE | 69 | 131 | Written Standardised score |
| SMSCORE | 69 | 131 | Mental Standardised score |
| SOSCORE | 69 | 131 | Overall Standardised score |
| VOLUNT | 0 | 1 | Voluntary school |
| KS1TIME | 20 | 24 | KS1- Hours/mins of lessons per week |
| KS2TIME | 22 | 26 | KS2- Hours/mins of lessons per week |
| KS1MTIME | 3 | 6 | KS1- Hours/mins of Maths lessons per week |
| KS2MTIME | 3 | 6 | KS2- Hours/mins of Maths lessons per week |
| PSEN | 0 | 100 | Percentage of SEN pupils |
| PNENG | 0 | 100 | Percentage of pupils with 1st lang. not English |
| PFSM | 0 | 92 | Percentage of pupils receiving Free school meals |
| PPTR | 5 | 41 | Pupil teacher ratio |
| PDEGREE | 0 | 45 | Percentage of teachers with Maths degree |
| PUNQUAL | 0 | 53 | Percentage of teachers unqualified |
| NOR | 27 | 770 | Number on roll |
| SEX | 0 | 2 | Sex (male = 0, female = 2) |
| AGE | 69 | 117 | Age in months |
| NURS | 0 | 2 | Received Nursery Education? |
| PRIMARY | 0 | 14 | Terms of primary education |
| NONUK | 0 | 1 | Received Non-UK Education? |
| SEN | 0 | 1 | Special Educational Needs |
| FSM | 0 | 1 | Receives Free School Meals? |
| STAGE | 1 | 5 | Stage of Learning English |
| ETHNIC2 | 0 | 1 | Black Caribbean |
| ETHNIC3 | 0 | 1 | Black African |
| ETHNIC4 | 0 | 1 | Black Other |
| ETHNIC5 | 0 | 1 | Indian |
| ETHNIC6 | 0 | 1 | Pakistani |
| ETHNIC7 | 0 | 1 | Bangladeshi |
| ETHNIC8 | 0 | 1 | Chinese |
| CONS | 1 | 1 | Constant term |
| YEAR1 | 0 | 1 | Year 1 indicator |
| YEAR2 | 0 | 1 | Year 2 indicator |
| YEAR4 | 0 | 1 | Year 4 indicator |

**Table 18: Numbers of LEAs, Schools and Pupils in Each Model**

| Model | LEAs | Schools | Pupils |
|---|---|---|---|
| All years (unified) | 15 | 283 | 33,752 |
| Year 1 | 15 | 254 | 11,521 |
| Year 2 | 15 | 254 | 11,443 |
| Year 4 | 15 | 250 | 10,788 |

**Table 19: Detailed Results of Multilevel Analysis of Written Test Score for All Year groups**

| | | | | 95% Confidence interval | |
|---|---|---|---|---|---|
| **Parameter** | **Estimate** | **Standard error** | **Sig.** | **Min.** | **Max.** |
| **Base case** | | | | | |
| LEA variance | 2.274 | 1.358 | | -0.388 | 4.936 |
| School variance | 17.760 | 2.232 | * | 13.385 | 22.135 |
| Year variance | 13.630 | 1.230 | * | 11.219 | 16.041 |
| Pupil variance | 194.200 | 1.553 | * | 191.156 | 197.244 |
| **Final model** | | | | | |
| LEA variance | 2.498 | 1.209 | * | 0.128 | 4.868 |
| School variance | 6.599 | 1.279 | * | 4.092 | 9.106 |
| Year variance | 13.860 | 1.219 | * | 11.471 | 16.249 |
| Pupil variance | 178.300 | 1.425 | * | 175.507 | 181.093 |
| **Fixed coefficients** | | | | | |
| CONS | 84.210 | 1.960 | * | 80.368 | 88.052 |
| YEAR2 | 0.342 | 0.568 | | -0.772 | 1.456 |
| YEAR4 | -0.729 | 1.275 | | -3.228 | 1.770 |
| SEX | -0.058 | 0.076 | | -0.206 | 0.090 |
| AGE | -0.037 | 0.021 | | -0.079 | 0.005 |
| NURS | 1.043 | 0.143 | * | 0.763 | 1.323 |
| PRIMARY | 0.445 | 0.115 | * | 0.219 | 0.670 |
| NONUK | 2.388 | 0.679 | * | 1.058 | 3.718 |
| SEN | -18.250 | 0.575 | * | -19.377 | -17.123 |
| FSM | -4.364 | 0.175 | * | -4.708 | -4.020 |
| STAGE | 3.881 | 0.143 | * | 3.600 | 4.162 |
| ETHNIC2 | -2.112 | 0.402 | * | -2.899 | -1.325 |
| ETHNIC3 | 2.218 | 0.508 | * | 1.223 | 3.213 |
| ETHNIC4 | -0.041 | 0.619 | | -1.255 | 1.172 |
| ETHNIC5 | 4.540 | 0.440 | * | 3.678 | 5.402 |
| ETHNIC6 | 2.069 | 0.442 | * | 1.202 | 2.936 |
| ETHNIC7 | 5.086 | 0.585 | * | 3.939 | 6.233 |
| ETHNIC8 | 10.710 | 1.178 | * | 8.401 | 13.019 |
| VOLUNT | 0.758 | 0.553 | | -0.325 | 1.841 |
| PSEN | -0.036 | 0.024 | | -0.082 | 0.010 |
| PNENG | 0.025 | 0.011 | * | 0.005 | 0.046 |
| PFSM | -0.093 | 0.018 | * | -0.128 | -0.059 |

**Table 20: Detailed Results of Multilevel Analysis of Mental Test Score for All Year groups**

| | | | | 95% Confidence interval | |
|---|---|---|---|---|---|
| **Parameter** | **Estimate** | **Standard error** | **Sig.** | **Min.** | **Max.** |
| **Base case** | | | | | |
| LEA variance | 4.280 | 2.251 | | -0.132 | 8.692 |
| School variance | 21.820 | 2.831 | * | 16.271 | 27.369 |
| Year variance | 19.320 | 1.661 | * | 16.064 | 22.576 |
| Pupil variance | 221.700 | 1.769 | * | 218.233 | 225.167 |
| **Final model** | | | | | |
| LEA variance | 3.049 | 1.542 | * | 0.027 | 6.071 |
| School variance | 11.400 | 1.794 | * | 7.884 | 14.916 |
| Year variance | 15.890 | 1.404 | * | 13.138 | 18.642 |
| Pupil variance | 207.100 | 1.652 | * | 203.862 | 210.338 |
| **Fixed coefficients** | | | | | |
| CONS | 71.110 | 2.935 | * | 65.357 | 76.863 |
| YEAR2 | 1.862 | 0.610 | * | 0.666 | 3.058 |
| YEAR4 | -1.201 | 1.372 | | -3.890 | 1.488 |
| SEX | -0.207 | 0.081 | * | -0.366 | -0.048 |
| AGE | 0.074 | 0.023 | * | 0.028 | 0.119 |
| NURS | 1.153 | 0.154 | * | 0.851 | 1.455 |
| PRIMARY | 0.272 | 0.124 | * | 0.029 | 0.514 |
| NONUK | 1.284 | 0.729 | | -0.144 | 2.712 |
| SEN | -18.290 | 0.609 | * | -19.483 | -17.097 |
| FSM | -3.920 | 0.189 | * | -4.289 | -3.551 |
| STAGE | 3.635 | 0.154 | * | 3.334 | 3.936 |
| ETHNIC2 | -1.188 | 0.432 | * | -2.035 | -0.341 |
| ETHNIC3 | 1.948 | 0.545 | * | 0.880 | 3.016 |
| ETHNIC4 | 0.938 | 0.666 | | -0.367 | 2.243 |
| ETHNIC5 | 3.783 | 0.474 | * | 2.855 | 4.711 |
| ETHNIC6 | 1.782 | 0.476 | * | 0.849 | 2.715 |
| ETHNIC7 | 3.893 | 0.629 | * | 2.660 | 5.126 |
| ETHNIC8 | 8.624 | 1.270 | * | 6.135 | 11.113 |
| PNENG | 0.023 | 0.012 | | -0.001 | 0.048 |
| PFSM | -0.100 | 0.018 | * | -0.136 | -0.064 |
| PPTR | 0.186 | 0.084 | * | 0.020 | 0.351 |
| PDEGREE | 0.069 | 0.057 | | -0.042 | 0.181 |

**Table 21: Detailed Results of Multilevel Analysis of Overall Test Score for All Year groups**

| | | | | 95% Confidence interval | |
|---|---|---|---|---|---|
| **Parameter** | **Estimate** | **Standard error** | **Sig.** | **Min.** | **Max.** |
| **Base case** | | | | | |
| LEA variance | 3.109 | 1.720 | | -0.262 | 6.480 |
| School variance | 20.360 | 2.440 | * | 15.578 | 25.142 |
| Year variance | 13.470 | 1.221 | * | 11.077 | 15.863 |
| Pupil variance | 190.800 | 1.526 | * | 187.809 | 193.791 |
| **Final model** | | | | | |
| LEA variance | 3.078 | 1.463 | * | 0.211 | 5.945 |
| School variance | 8.655 | 1.413 | * | 5.886 | 11.424 |
| Year variance | 12.890 | 1.151 | * | 10.634 | 15.146 |
| Pupil variance | 175.000 | 1.399 | * | 172.258 | 177.742 |
| **Fixed coefficients** | | | | | |
| CONS | 79.380 | 2.667 | * | 74.153 | 84.607 |
| YEAR2 | 1.112 | 0.558 | * | 0.018 | 2.206 |
| YEAR4 | -0.926 | 1.262 | | -3.399 | 1.548 |
| SEX | -0.143 | 0.075 | | -0.290 | 0.003 |
| AGE | -0.012 | 0.021 | | -0.053 | 0.030 |
| NURS | 1.080 | 0.142 | * | 0.802 | 1.358 |
| PRIMARY | 0.405 | 0.114 | * | 0.181 | 0.628 |
| NONUK | 2.051 | 0.672 | * | 0.734 | 3.368 |
| SEN | -18.570 | 0.568 | * | -19.683 | -17.457 |
| FSM | -4.283 | 0.174 | * | -4.623 | -3.943 |
| STAGE | 3.875 | 0.142 | * | 3.597 | 4.153 |
| ETHNIC2 | -1.824 | 0.398 | * | -2.605 | -1.043 |
| ETHNIC3 | 2.179 | 0.503 | * | 1.193 | 3.165 |
| ETHNIC4 | 0.299 | 0.613 | | -0.903 | 1.502 |
| ETHNIC5 | 4.289 | 0.436 | * | 3.434 | 5.144 |
| ETHNIC6 | 1.992 | 0.439 | * | 1.132 | 2.852 |
| ETHNIC7 | 4.702 | 0.581 | * | 3.564 | 5.840 |
| ETHNIC8 | 10.090 | 1.167 | * | 7.803 | 12.377 |
| PNENG | 0.028 | 0.011 | * | 0.006 | 0.049 |
| PFSM | -0.108 | 0.016 | * | -0.140 | -0.075 |
| PPTR | 0.129 | 0.075 | | -0.019 | 0.276 |

**Table 22: Detailed Results of Multilevel Analysis of Overall Test Score for Year 1**

| | | | | 95% Confidence interval | |
|---|---|---|---|---|---|
| **Parameter** | **Estimate** | **Standard error** | **Sig.** | **Min.** | **Max.** |
| **Base case** | | | | | |
| LEA variance | 3.970 | 2.395 | | -0.724 | 8.664 |
| School variance | 35.790 | 3.733 | * | 28.473 | 43.107 |
| Pupil variance | 169.000 | 2.317 | * | 164.459 | 173.541 |
| **Final model** | | | | | |
| LEA variance | 4.026 | 1.994 | * | 0.118 | 7.934 |
| School variance | 24.860 | 2.685 | * | 19.597 | 30.123 |
| Pupil variance | 158.400 | 2.172 | * | 154.143 | 162.657 |
| **Fixed coefficients** | | | | | |
| CONS | 7.364 | 0.000 | | 7.364 | 7.364 |
| SEX | 0.465 | 0.122 | * | 0.225 | 0.705 |
| AGE | -0.097 | 0.035 | * | -0.165 | -0.029 |
| NURS | 1.066 | 0.194 | * | 0.685 | 1.447 |
| NONUK | 1.323 | 1.420 | | -1.460 | 4.106 |
| SEN | -15.530 | 1.076 | * | -17.639 | -13.421 |
| FSM | -3.586 | 0.285 | * | -4.145 | -3.027 |
| STAGE | 2.948 | 0.216 | * | 2.526 | 3.370 |
| ETHNIC2 | -1.738 | 0.701 | * | -3.112 | -0.364 |
| ETHNIC3 | 2.250 | 0.805 | * | 0.671 | 3.829 |
| ETHNIC4 | -0.024 | 0.939 | | -1.865 | 1.817 |
| ETHNIC5 | 3.680 | 0.726 | * | 2.256 | 5.104 |
| ETHNIC6 | 0.702 | 0.726 | | -0.722 | 2.125 |
| ETHNIC7 | 3.505 | 0.956 | * | 1.632 | 5.378 |
| ETHNIC8 | 7.087 | 1.987 | * | 3.192 | 10.982 |
| KS1TIME | -0.562 | 0.423 | | -1.391 | 0.267 |
| KS2TIME | 0.978 | 0.544 | | -0.089 | 2.045 |
| PNENG | 0.020 | 0.016 | | -0.012 | 0.051 |
| PFSM | -0.103 | 0.023 | * | -0.149 | -0.057 |
| PPTR | 0.220 | 0.113 | | -0.001 | 0.442 |

**Table 23: Detailed Results of Multilevel Analysis of Overall Test Score for Year 2**

| | | | | 95% Confidence interval | |
|---|---|---|---|---|---|
| **Parameter** | **Estimate** | **Standard error** | **Sig.** | **Min.** | **Max.** |
| **Base case** | | | | | |
| LEA variance | 2.468 | 1.733 | | -0.929 | 5.865 |
| School variance | 30.770 | 3.335 | * | 24.233 | 37.307 |
| Pupil variance | 196.900 | 2.703 | * | 191.602 | 202.198 |
| **Final model** | | | | | |
| LEA variance | 2.071 | 1.402 | | -0.677 | 4.819 |
| School variance | 22.890 | 2.564 | * | 17.865 | 27.915 |
| Pupil variance | 180.500 | 2.478 | * | 175.643 | 185.357 |
| **Fixed coefficients** | | | | | |
| CONS | 56.360 | 11.010 | * | 34.780 | 77.940 |
| SEX | -0.332 | 0.131 | * | -0.588 | -0.076 |
| AGE | 0.036 | 0.037 | | -0.036 | 0.109 |
| NURS | 1.152 | 0.203 | * | 0.755 | 1.549 |
| NONUK | 3.170 | 1.297 | * | 0.628 | 5.712 |
| SEN | -19.240 | 1.012 | * | -21.224 | -17.256 |
| FSM | -4.145 | 0.300 | * | -4.734 | -3.556 |
| STAGE | 3.996 | 0.253 | * | 3.499 | 4.493 |
| ETHNIC2 | -1.363 | 0.674 | * | -2.683 | -0.043 |
| ETHNIC3 | 1.596 | 0.887 | | -0.142 | 3.334 |
| ETHNIC4 | 0.063 | 1.103 | | -2.099 | 2.225 |
| ETHNIC5 | 3.667 | 0.753 | * | 2.192 | 5.142 |
| ETHNIC6 | 0.783 | 0.755 | | -0.697 | 2.263 |
| ETHNIC7 | 4.823 | 1.010 | * | 2.843 | 6.803 |
| ETHNIC8 | 9.957 | 1.999 | * | 6.039 | 13.875 |
| KS2TIME | 1.043 | 0.435 | * | 0.191 | 1.895 |
| PNENG | 0.034 | 0.015 | * | 0.004 | 0.063 |
| PFSM | -0.088 | 0.022 | * | -0.131 | -0.044 |

**Table 24: Detailed Results of Multilevel Analysis of Overall Test Score for Year 4**

| | | | | 95% Confidence interval | |
|---|---|---|---|---|---|
| **Parameter** | **Estimate** | **Standard error** | **Sig.** | **Min.** | **Max.** |
| **Base case** | | | | | |
| LEA variance | 3.845 | 2.247 | | -0.559 | 8.249 |
| School variance | 29.350 | 3.274 | * | 22.933 | 35.767 |
| Pupil variance | 207.400 | 2.931 | * | 201.655 | 213.145 |
| **Final model** | | | | | |
| LEA variance | 0.506 | 0.654 | | -0.776 | 1.787 |
| School variance | 15.670 | 1.933 | * | 11.881 | 19.459 |
| Pupil variance | 184.600 | 2.608 | * | 179.488 | 189.712 |
| **Fixed coefficients** | | | | | |
| CONS | 76.750 | 4.539 | * | 67.854 | 85.646 |
| SEX | -0.597 | 0.136 | * | -0.863 | -0.331 |
| AGE | 0.048 | 0.038 | | -0.028 | 0.123 |
| NONUK | 2.214 | 0.958 | * | 0.336 | 4.092 |
| SEN | -19.470 | 0.896 | * | -21.227 | -17.713 |
| FSM | -5.127 | 0.317 | * | -5.748 | -4.506 |
| STAGE | 5.232 | 0.279 | * | 4.686 | 5.778 |
| ETHNIC2 | -2.088 | 0.683 | * | -3.427 | -0.749 |
| ETHNIC3 | 2.716 | 0.913 | * | 0.928 | 4.505 |
| ETHNIC4 | 1.212 | 1.160 | | -1.062 | 3.486 |
| ETHNIC5 | 5.703 | 0.778 | * | 4.178 | 7.228 |
| ETHNIC6 | 4.470 | 0.782 | * | 2.937 | 6.003 |
| ETHNIC7 | 6.706 | 1.012 | * | 4.722 | 8.690 |
| ETHNIC8 | 12.740 | 2.073 | * | 8.677 | 16.803 |
| PSEN | -0.078 | 0.029 | * | -0.135 | -0.021 |
| PNENG | 0.029 | 0.014 | * | 0.001 | 0.056 |
| PFSM | -0.091 | 0.022 | * | -0.134 | -0.047 |

# Section 2

# Full Data Sets

# Cohort 1 – Year 3

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## Project Report 1 - National Numeracy Project - June 1998
## Cohort 1 - Year 3 - Mean Standardised Test Scores
## Summary by background data- ALL LEAs

| | | Written Round 3 | | Mental Round 3 | | Overall Round 3 | | Written Progress | | Mental Progress | | Overall Progress | | No. of pupils absent | Total no. of pupils | Percent of pupils |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | | | |
| Total | | 101.6 | 15.9 | 102.0 | 15.9 | 102.1 | 15.8 | 5.7 | 10.8 | 6.6 | 13.4 | 6.6 | 10.3 | 481 | 7687 | 100% |
| Gender | Boys | 102.0 | 16.2 | 102.5 | 16.2 | 102.6 | 16.1 | 6.3 | 10.9 | 7.1 | 13.6 | 7.2 | 10.3 | 251 | 3933 | 51% |
| | Girls | 101.1 | 15.5 | 101.5 | 15.4 | 101.6 | 15.4 | 5.0 | 10.8 | 6.0 | 13.1 | 6.0 | 10.2 | 227 | 3751 | 49% |
| | Not known | | | | | | | | | | | | | 3 | 3 | 0% |
| Ethnic group | White | 102.8 | 16.0 | 103.1 | 15.9 | 103.4 | 15.9 | 5.6 | 10.7 | 6.4 | 13.4 | 6.5 | 10.3 | 303 | 5424 | 71% |
| | Black Caribbean | 97.5 | 14.0 | 99.4 | 14.9 | 98.5 | 14.2 | 4.5 | 11.5 | 3.6 | 14.1 | 4.9 | 11.3 | 14 | 288 | 4% |
| | Black African | 99.5 | 14.9 | 101.2 | 16.1 | 100.5 | 15.4 | 4.2 | 13.0 | 6.0 | 13.4 | 5.3 | 11.2 | 6 | 165 | 2% |
| | Black Other | 99.4 | 15.9 | 101.9 | 16.3 | 100.5 | 15.6 | 3.3 | 11.6 | 9.9 | 15.5 | 6.1 | 9.9 | 9 | 73 | 1% |
| | Indian | 102.6 | 13.9 | 102.9 | 14.6 | 103.1 | 14.1 | 6.2 | 9.6 | 8.3 | 12.4 | 7.7 | 9.1 | 11 | 294 | 4% |
| | Pakistani | 96.6 | 14.7 | 97.8 | 15.2 | 97.3 | 14.9 | 6.2 | 10.4 | 8.2 | 12.7 | 7.8 | 9.9 | 23 | 573 | 7% |
| | Bangladeshi | 95.6 | 15.4 | 95.5 | 15.3 | 95.7 | 15.0 | 6.4 | 11.2 | 7.1 | 13.0 | 7.4 | 9.8 | 82 | 488 | 6% |
| | Other | 101.5 | 15.5 | 101.7 | 15.6 | 102.0 | 15.3 | 6.0 | 12.3 | 6.7 | 14.4 | 6.9 | 11.3 | 19 | 355 | 5% |
| | Not known | 98.8 | 11.3 | 97.6 | 13.8 | 98.9 | 12.2 | 13.0 | 8.5 | 13.0 | 14.1 | 14.5 | 10.6 | 14 | 27 | 0% |
| Receives Free School Meals? | Yes | 96.9 | 15.2 | 97.6 | 15.5 | 97.4 | 15.1 | 5.1 | 11.2 | 5.8 | 13.6 | 6.1 | 10.6 | 217 | 2882 | 37% |
| | No | 104.7 | 15.6 | 105.0 | 15.4 | 105.3 | 15.5 | 6.0 | 10.6 | 7.0 | 13.2 | 7.0 | 10.2 | 220 | 4213 | 55% |
| | Not known | 101.3 | 15.4 | 101.7 | 15.8 | 101.8 | 15.4 | 5.8 | 10.4 | 6.8 | 13.5 | 6.8 | 9.6 | 44 | 592 | 8% |
| Special Educational Needs level | None | 105.8 | 14.5 | 105.9 | 14.4 | 106.4 | 14.3 | 5.9 | 10.9 | 7.4 | 13.4 | 7.0 | 10.4 | 335 | 5558 | 72% |
| | Stage 1 | 92.9 | 12.7 | 93.9 | 13.3 | 93.3 | 12.6 | 5.3 | 10.9 | 4.3 | 13.3 | 5.6 | 10.3 | 35 | 759 | 10% |
| | Stage 2 | 89.2 | 13.1 | 90.7 | 14.1 | 89.7 | 13.2 | 5.2 | 10.4 | 4.2 | 12.7 | 5.7 | 9.8 | 53 | 744 | 10% |
| | Stage 3 | 84.4 | 12.7 | 86.8 | 14.5 | 85.0 | 13.1 | 3.0 | 9.9 | 3.1 | 11.8 | 3.8 | 9.0 | 21 | 257 | 3% |
| | Stage 4 or above | 80.9 | 12.7 | 80.5 | 13.0 | 80.6 | 12.6 | 3.5 | 10.4 | .5 | 12.8 | 3.1 | 10.0 | 16 | 140 | 2% |
| | Not known | 98.8 | 15.1 | 100.5 | 16.6 | 99.8 | 15.6 | 6.9 | 10.6 | 8.1 | 12.9 | 8.2 | 9.8 | 21 | 229 | 3% |
| Stage of Learning English | New to English | 84.2 | 12.4 | 84.8 | 14.4 | 84.2 | 12.6 | 5.3 | 7.3 | 4.8 | 12.1 | 6.2 | 7.8 | 6 | 108 | 1% |
| | Becoming familiar with English | 94.3 | 14.4 | 94.3 | 14.7 | 94.4 | 14.2 | 7.5 | 10.8 | 6.4 | 13.0 | 8.0 | 9.9 | 54 | 536 | 7% |
| | Becoming confident with English | 98.8 | 14.0 | 99.6 | 14.1 | 99.4 | 14.0 | 5.3 | 11.4 | 6.6 | 12.2 | 6.4 | 10.1 | 44 | 572 | 7% |
| | Very fluent in most contexts | 103.2 | 14.9 | 104.1 | 15.1 | 104.0 | 14.8 | 5.1 | 11.0 | 7.9 | 14.4 | 6.5 | 10.3 | 25 | 482 | 6% |
| | English first language | 102.7 | 15.9 | 103.1 | 15.7 | 103.3 | 15.8 | 5.6 | 10.8 | 6.4 | 13.4 | 6.5 | 10.4 | 332 | 5725 | 74% |
| | Not known | 100.7 | 15.7 | 102.6 | 17.1 | 101.8 | 16.1 | 7.4 | 10.1 | 9.1 | 13.1 | 8.8 | 9.6 | 20 | 264 | 3% |

* Number of pupils absent from overall testing

## Project Report 1 - National Numeracy Project - June 1998
## Cohort 1 - Year 3 - Mean Standardised Test Scores
## Summary by background data- ALL LEAs

| | | Written Round 3 | | Mental Round 3 | | Overall Round 3 | | Written Progress | | Mental Progress | | Overall Progress | | No. of pupils absent | Total no. of pupils | Percent of pupils |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | | | |
| No. of terms Primary Education | 4 terms or less | 94.6 | 15.8 | 95.8 | 15.7 | 95.2 | 15.6 | 4.9 | 10.3 | 2.4 | 20.1 | 4.4 | 11.8 | 15 | 348 | 5% |
| | 5 | 96.3 | 14.0 | 97.0 | 15.6 | 96.8 | 14.4 | 4.4 | 11.3 | 6.3 | 11.4 | 5.0 | 8.5 | 6 | 74 | 1% |
| | 6 | 101.8 | 15.3 | 100.6 | 16.4 | 101.7 | 15.3 | 4.8 | 9.5 | 5.1 | 12.0 | 5.7 | 8.6 | 7 | 94 | 1% |
| | 7 | 97.3 | 14.5 | 96.2 | 14.6 | 97.0 | 14.0 | 6.0 | 10.6 | 6.2 | 13.9 | 6.9 | 10.4 | 3 | 46 | 1% |
| | 8 | 96.3 | 15.3 | 97.2 | 15.4 | 96.9 | 15.4 | 4.8 | 9.9 | 6.4 | 12.3 | 6.3 | 9.3 | 13 | 258 | 3% |
| | 9 | 98.6 | 15.0 | 99.7 | 15.1 | 99.3 | 14.9 | 4.7 | 10.5 | 5.2 | 13.6 | 5.6 | 10.3 | 40 | 572 | 7% |
| | 10 | 100.6 | 15.6 | 101.3 | 15.9 | 101.2 | 15.6 | 4.4 | 11.4 | 4.8 | 13.9 | 5.1 | 10.9 | 102 | 1379 | 18% |
| | 11 | 104.2 | 15.7 | 104.3 | 15.5 | 104.7 | 15.6 | 6.4 | 10.7 | 7.1 | 13.2 | 7.3 | 10.2 | 231 | 3895 | 51% |
| | 12 | 102.6 | 17.6 | 103.3 | 16.8 | 103.3 | 17.1 | 8.7 | 12.1 | 10.3 | 15.9 | 10.2 | 12.2 | 10 | 140 | 2% |
| | Not known | 98.3 | 15.2 | 99.3 | 16.1 | 99.0 | 15.4 | 4.8 | 10.4 | 7.8 | 12.7 | 6.6 | 9.1 | 54 | 881 | 11% |
| KS1 Teacher Assessment level- Number | 1 | 89.0 | 11.1 | 90.2 | 12.2 | 89.3 | 11.0 | 5.2 | 10.7 | 4.3 | 13.2 | 5.7 | 10.1 | 118 | 1467 | 19% |
| | 2 | 105.2 | 12.8 | 105.5 | 12.8 | 105.9 | 12.4 | 6.5 | 11.0 | 7.9 | 13.5 | 7.7 | 10.4 | 218 | 3588 | 47% |
| | 3 | 120.0 | 9.9 | 119.6 | 10.0 | 120.9 | 9.5 | 5.2 | 9.8 | 6.0 | 12.4 | 5.8 | 9.5 | 31 | 729 | 9% |
| | Not Known | 96.9 | 16.6 | 97.6 | 17.0 | 97.4 | 16.7 | 4.0 | 10.9 | 5.8 | 13.6 | 5.3 | 10.4 | 114 | 1903 | 25% |
| KS1 Mathematics Task/Test level | 1 | 87.1 | 10.2 | 88.7 | 11.7 | 87.5 | 10.3 | 4.9 | 10.1 | 4.0 | 12.8 | 5.4 | 9.6 | 82 | 1180 | 15% |
| | 2 | 107.2 | 13.0 | 105.7 | 15.3 | 107.2 | 13.1 | 11.7 | 10.7 | 10.6 | 15.3 | 12.4 | 10.1 | 9 | 177 | 2% |
| | 2A | 110.8 | 11.3 | 110.2 | 11.3 | 111.3 | 10.8 | 6.1 | 11.5 | 7.7 | 13.5 | 7.3 | 10.8 | 59 | 1214 | 16% |
| | 2B | 103.8 | 11.5 | 104.4 | 11.5 | 104.5 | 11.1 | 6.6 | 11.3 | 8.4 | 13.5 | 7.9 | 10.8 | 79 | 1154 | 15% |
| | 2C | 96.8 | 11.2 | 98.0 | 12.3 | 97.4 | 11.1 | 6.2 | 10.8 | 7.7 | 13.8 | 7.5 | 10.3 | 98 | 1293 | 17% |
| | 3 | 119.8 | 10.2 | 118.8 | 10.5 | 120.5 | 9.8 | 5.7 | 9.7 | 6.4 | 12.4 | 6.3 | 9.5 | 37 | 953 | 12% |
| | Not Known | 95.9 | 16.1 | 96.8 | 16.7 | 96.4 | 16.2 | 3.4 | 10.9 | 4.3 | 13.1 | 4.2 | 10.0 | 117 | 1716 | 22% |

*** Number of pupils absent from overall testing**

# Project Report 2 - National Numeracy Project - June 1998
# Cohort 1 - Round 3 - Mean Standardised Test Scores
# Summary by LEA

*Year Group: 3*

| | | Written | | Mental | | Overall | | No. of pupils absent | Total no. of pupils |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | | |
| Total | | 101.6 | 15.9 | 102.0 | 15.9 | 102.1 | 15.8 | 481 | 7687 |
| LEA | 1 | 100.0 | 15.5 | 101.7 | 15.6 | 101.0 | 15.5 | 14 | 468 |
| | 2 | 106.8 | 15.6 | 106.0 | 15.0 | 107.1 | 15.4 | 29 | 710 |
| | 3 | 102.3 | 15.0 | 102.8 | 15.7 | 102.9 | 15.3 | 17 | 393 |
| | 4 | 99.4 | 15.0 | 101.1 | 15.9 | 100.4 | 15.1 | 33 | 674 |
| | 5 | 101.3 | 15.1 | 101.2 | 15.5 | 101.6 | 15.1 | 32 | 826 |
| | 6 | 98.3 | 15.6 | 99.7 | 16.2 | 99.1 | 15.6 | 19 | 531 |
| | 7 | 100.2 | 14.7 | 98.2 | 16.6 | 99.8 | 15.1 | 10 | 227 |
| | 8 | 102.8 | 16.2 | 103.9 | 15.6 | 103.7 | 16.0 | 21 | 577 |
| | 9 | 104.3 | 16.5 | 104.5 | 15.3 | 104.9 | 15.9 | 31 | 624 |
| | 10 | 99.9 | 16.0 | 99.4 | 16.1 | 100.0 | 15.9 | 137 | 571 |
| | 12 | 100.1 | 15.8 | 100.5 | 15.7 | 100.5 | 15.8 | 34 | 862 |
| | 14 | 102.3 | 16.9 | 102.2 | 16.5 | 102.7 | 16.8 | 21 | 587 |
| | 15 | 101.0 | 15.9 | 102.4 | 15.7 | 101.9 | 15.8 | 83 | 637 |

# Project Report 3 - National Numeracy Project - June 1998
# Cohort 1 - Round 3 - Mean Progress Standardised Test Scores
# Summary by LEA

***Year Group: 3***

| | | Written Progress Score: Round3 - Round2 | | Mental Progress Score: Round3 - Round2 | | Overall Progress Score: Round3 - Round2 | | Written Progress Score: Round3 - Round1 | | Mental Progress Score: Round3 - Round1 | | Overall Progress Score: Round3 - Round1 | | No. of pupils absent | Total no. of pupils |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | | |
| Total | | 2.0 | 11.2 | 1.9 | 12.8 | 1.6 | 10.1 | 5.7 | 10.8 | 6.6 | 13.4 | 6.6 | 10.3 | 1776 | 7687 |
| LEA | 1 | .8 | 10.7 | 2.4 | 13.3 | 1.0 | 9.6 | 4.7 | 10.8 | 4.3 | 12.9 | 5.1 | 9.9 | 100 | 468 |
| | 2 | 3.8 | 10.9 | .8 | 11.0 | 2.4 | 9.2 | 8.5 | 10.4 | 8.4 | 13.2 | 9.1 | 10.2 | 110 | 710 |
| | 3 | 1.5 | 9.4 | 2.4 | 12.5 | 1.5 | 9.4 | 5.1 | 9.0 | 5.8 | 11.0 | 5.9 | 8.3 | 90 | 393 |
| | 4 | .1 | 9.9 | .8 | 12.5 | .0 | 9.1 | 2.5 | 10.6 | 5.0 | 14.1 | 3.9 | 10.3 | 132 | 674 |
| | 5 | 2.1 | 11.7 | 1.9 | 12.2 | 1.7 | 10.3 | 5.2 | 10.1 | 5.0 | 12.9 | 5.7 | 9.5 | 193 | 826 |
| | 6 | -2.4 | 12.2 | .5 | 12.9 | -1.8 | 10.4 | 1.9 | 12.5 | 3.8 | 14.4 | 3.0 | 11.1 | 130 | 531 |
| | 7 | 4.9 | 9.8 | 2.7 | 13.5 | 4.0 | 9.2 | 8.7 | 9.5 | 7.0 | 12.1 | 8.8 | 9.3 | 48 | 227 |
| | 8 | 3.3 | 10.1 | 2.2 | 13.2 | 2.6 | 9.5 | 6.2 | 10.3 | 7.7 | 12.2 | 7.5 | 9.6 | 108 | 577 |
| | 9 | 6.5 | 11.9 | 5.1 | 13.5 | 5.8 | 10.8 | 7.4 | 11.2 | 8.0 | 13.7 | 8.3 | 10.6 | 128 | 624 |
| | 10 | 1.7 | 12.3 | 3.9 | 14.1 | 2.2 | 11.2 | 8.8 | 10.8 | 8.5 | 14.6 | 9.3 | 10.5 | 245 | 571 |
| | 12 | 1.7 | 11.7 | 2.7 | 12.5 | 1.7 | 10.6 | 5.6 | 10.7 | 8.8 | 13.5 | 7.6 | 10.2 | 220 | 862 |
| | 14 | 2.5 | 10.0 | 1.6 | 11.5 | 1.8 | 9.2 | 7.3 | 10.0 | 7.8 | 12.2 | 8.3 | 9.7 | 120 | 587 |
| | 15 | -.1 | 11.2 | -1.8 | 13.4 | -1.2 | 10.6 | 3.6 | 11.3 | 4.8 | 14.3 | 4.6 | 11.3 | 152 | 637 |

# Project Report 4 - National Numeracy Project - June 1998
# Cohort 1 - Round 3 - Mean Progress Standardised Test Scores
# Summary by LEA

*Year Group: 3*

| | | Written Rounds (2 - 1) | Mental Rounds (2 - 1) | Overall Rounds (2 - 1) | Written Rounds (3 - 2) | Mental Rounds (3 - 2) | Overall Rounds (3 - 2) | Written Rounds (3 - 1) | Mental Rounds (3 - 1) | Overall Rounds (3 - 1) | No. of pupils absent | Total no. of pupils |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Mean | Mean | Mean | Mean | Mean | Mean | Mean | Mean | | |
| Total | | 3.8 | 4.9 | 5.2 | 2.0 | 1.9 | 1.6 | 5.7 | 6.6 | 6.6 | 1776 | 7687 |
| LEA | 1 | 3.9 | 1.9 | 4.0 | .8 | 2.4 | 1.0 | 4.7 | 4.3 | 5.1 | 100 | 468 |
| | 2 | 4.7 | 7.5 | 6.8 | 3.8 | .8 | 2.4 | 8.5 | 8.4 | 9.1 | 110 | 710 |
| | 3 | 3.7 | 3.4 | 4.5 | 1.5 | 2.4 | 1.5 | 5.1 | 5.8 | 5.9 | 90 | 393 |
| | 4 | 2.5 | 4.2 | 4.0 | .1 | .8 | .0 | 2.5 | 5.0 | 3.9 | 132 | 674 |
| | 5 | 3.4 | 3.3 | 4.3 | 2.1 | 1.9 | 1.7 | 5.2 | 5.0 | 5.7 | 193 | 826 |
| | 6 | 4.6 | 3.5 | 5.0 | -2.4 | .5 | -1.8 | 1.9 | 3.8 | 3.0 | 130 | 531 |
| | 7 | 3.9 | 3.8 | 4.8 | 4.9 | 2.7 | 4.0 | 8.7 | 7.0 | 8.8 | 48 | 227 |
| | 8 | 3.0 | 5.6 | 4.9 | 3.3 | 2.2 | 2.6 | 6.2 | 7.7 | 7.5 | 108 | 577 |
| | 9 | 1.4 | 3.8 | 3.1 | 6.5 | 5.1 | 5.8 | 7.4 | 8.0 | 8.3 | 128 | 624 |
| | 10 | 6.5 | 4.1 | 6.6 | 1.7 | 3.9 | 2.2 | 8.8 | 8.5 | 9.3 | 245 | 571 |
| | 12 | 4.2 | 6.5 | 6.2 | 1.7 | 2.7 | 1.7 | 5.6 | 8.8 | 7.6 | 220 | 862 |
| | 14 | 5.3 | 6.6 | 6.9 | 2.5 | 1.6 | 1.8 | 7.3 | 7.8 | 8.3 | 120 | 587 |
| | 15 | 3.2 | 6.4 | 5.4 | -.1 | -1.8 | -1.2 | 3.6 | 4.8 | 4.6 | 152 | 637 |

# National Numeracy Project - June 1998
## Year : 3 Cohort: 1

### Item Facilities Report

| Item No. | Written Test | Mathematical content | | | | Project | National | Project - National Difference |
|---|---|---|---|---|---|---|---|---|
| 22 | Round three-digit number to nearest 100 | Write 357 to nearest 100 | G | | | 52% | 33% | 19% |
| 16 | Doubling | Double 60 | M | | | 53% | 44% | 10% |
| 8 | Subtract 10 from a two digit number | 10 less than 78 | S | | | 62% | 53% | 9% |
| 28 | Find the difference between a positive and a negative number in | Find difference between 5° and -4° | S | E | | 19% | 11% | 8% |
| 14 | Fraction recognition (one quarter) | Recognise a shaded quarter of a circle | F | | | 49% | 41% | 8% |
| 36 | Approximate the addition of three-digit numbers | Round each part of 897 + 406 to nearest 100 | G | | | 20% | 13% | 7% |
| 27 | Read temperature from scale | Read 13 °C on scale - 30° to 40° degrees,numbered every 10° | R | | | 46% | 39% | 7% |
| 18 | | _ - 10 = 46 | S | B | | 57% | 50% | 6% |
| 42 | Find the perimeter of a rectangle | Perimeter of 72m x 100m rectangle, all sides marked | I | | | 13% | 7% | 6% |
| 26 | Multiply two-digit number by 2,not crossing tens | 71 x 2 = _ | M | X | | 26% | 21% | 6% |
| 38 | Fraction recognition (three tenths) | Recognise three tenths of a 2x5 rectangle | F | | | 13% | 7% | 6% |
| 31 | Numbers divisible by 5 with no remainder | Ring two multiples of 5: 8 36 15 53 11 40 | N | | | 36% | 31% | 5% |
| 21 | Read weight from scale | Read 400g on scale 0 to 3kg, numbered every 500g | R | | | 30% | 24% | 5% |
| 19 | Divide two-digit number by 4 | 48 ÷ 4 = _ | D | | | 32% | 27% | 5% |
| 32 | Divide a two-digit number by 5 | 85 ÷ 5 = _ | D | | | 19% | 14% | 5% |
| 24 | | 43 - _ = 37 | S | B | | 48% | 44% | 4% |
| 15 | Add two digit numbers,crossing tens | 27 + 36 = _ | A | | | 59% | 55% | 4% |
| 44 | Subtract decimals with one decimal place | 4.6 - 0.9 = _ | S | F | | 9% | 6% | 4% |
| 34 | Add fractions | ½ + ¼ = _ | F | | | 15% | 11% | 4% |
| 35 | Add three-digit numbers, crossing 10s and 100s | 284 + 178 = _ | A | | | 23% | 20% | 4% |
| 25 | Convert metres to centimetres | How many centimetres in 4 metres ? | M | L | | 36% | 33% | 3% |
| 5 | | 18 - _ = 13 | S | B | | 73% | 70% | 3% |
| 30 | 2 step word problem involving x and + | 3 Oranges @ 11p and 1 pineapple @ 95p | M | A | £ | 23% | 20% | 3% |
| 40 | Divide three-digit number by 25, in a word problem | 25 books in pack. Need 450 books. How many packs? | D | E | | 8% | 6% | 3% |
| 37 | Divide two-digit number by 3, with remainder | 67 ÷ 3 = _ | D | | | 7% | 5% | 3% |
| 29 | Order numbers with one or two decimal places | Order 3.71 3.17 31.7 7.13 37.1 | P | | | 37% | 35% | 2% |
| 6 | Read time to half hour on a digital clock,add 1 hour | Read 10:30 on a digital clock.What time 1 hour later ? | A | T | | 60% | 57% | 2% |
| 41 | Subtract a four digit number from 3000 | 3000 - 1997 = _ | S | | | 5% | 3% | 2% |

## National Numeracy Project - June 1998
## Year : 3 Cohort: 1

### Item Facilities Report

| Item No. | Written Test | Mathematical content | | | | Project | National | Project - National Difference |
|---|---|---|---|---|---|---|---|---|
| 43 | Divide a two-digit number by 4, with remainder | 93 ÷ 4 = _ | D | | | 4% | 3% | 1% |
| 33 | Subtract length, crossing tens, in a word problem | Ribbon 94 cm. Cut off 39 cm. How many cm left? | S | L | | 15% | 14% | 1% |
| 2 | Add ten to teens number | 19+10= _ | A | X | | 88% | 87% | 1% |
| 17 | '15 percent of' | Ring even numbers in range 5 to 21 | N | | | 64% | 63% | 1% |
| 45 | Volume of cuboid by counting cubes | Number of cm cubes in 2cm x 3cm x 4cm cuboid | V | | | 8% | 8% | 0% |
| 11 | Add three single digits | 3 + 4 / 8 = _ | A | | | 86% | 85% | 0% |
| 23 | Multiply teens number by 3, not crossing tens | 13 x 3 = _ | M | X | | 47% | 46% | 0% |
| 7 | Find two numbers that add to.... | _ + _ = 28 | A | O | | 83% | 83% | 0% |
| 39 | Subtract three-digit numbers, crossing 10s and 100s | 354 - 159 = _ | S | | | 8% | 8% | 0% |
| 13 | Divide money, in a word problem | 5 biscuits cost 25p. How much is one biscuit ? | D | E | | 72% | 72% | 0% |
| 1 | Count to 7 | Count 7 bags of crisps | A | | | 98% | 99% | 0% |
| 3 | Recognise and find the total of 5p,2p and 1p coins | 5p+2p+1p+1p How much altogether? | A | £ | | 92% | 92% | 0% |
| 12 | Order five numbers less than 100 | Order 73, 47, 6, 12, 55 | P | | | 90% | 90% | 0% |
| 10 | Subtract single digit from teens number, in word problem | 12 Birds. 5 fly away. How many left ? | S | E | | 88% | 88% | -1% |
| 20 | Mutiply a single digit by itself(square number) | 6 x 6 = _ | M | N | | 45% | 47% | -2% |
| 9 | Read a bar chart,scale marked in ones | Read off the bar - 6 children | R | H | | 84% | 87% | -2% |
| 4 | Subtract single digits,in a word problem | E. has 4 apples. J. has 7.How many more has J ? | S | E | | 72% | 79% | -6% |

## National Numeracy Project - June 1998
## Year : 3 Cohort: 1

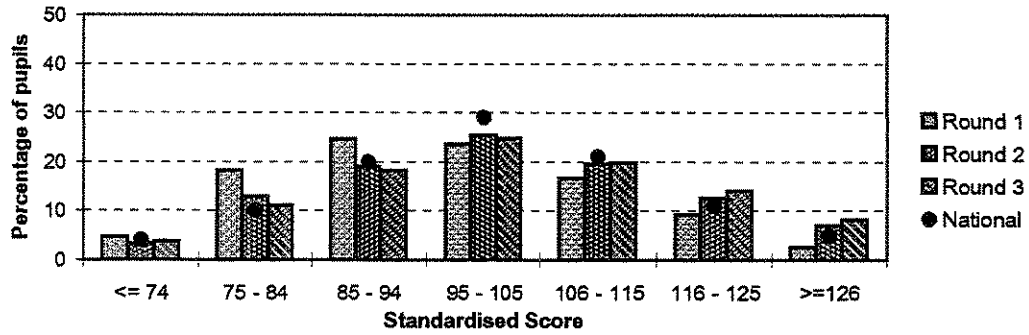
### Item Facilities Report

| Item No. | Mental Test | Mathematical content | | | | Project | National | Project - National Difference |
|---|---|---|---|---|---|---|---|---|
| 12 | 'Write in figures' three digit number | Write in figures 506 | P | | | 71% | 58% | 13% |
| 17 | 'Subtract' 30 from a two digit number | 56 subtract 30 | S | | | 36% | 26% | 10% |
| 14 | 'Write to the nearest hundred | Write 254 to nearest 10( | G | | | 39% | 30% | 10% |
| 7 | 'Sum of' two single digits, crossing ten | Sum of nine and eight | A | | | 60% | 52% | 8% |
| 15 | 'Difference between' 10 and a two digit number; | Difference between 73 and 10 ? | S | | | 31% | 23% | 8% |
| 11 | 'Half of' two digit number | One half of 28 | D | | | 45% | 39% | 7% |
| 21 | 'Add' two two digit numbers, crossing tens | 28 add 43 | A | | | 25% | 18% | 6% |
| 13 | Take away a number from....it leaves....what is the number ? | Take away a number from 81.It leaves 72.What's the number ? | S | B | | 38% | 32% | 6% |
| 16 | 'Multiply by' with single digits | Multiply six by four | M | | | 25% | 20% | 6% |
| 10 | 'Add' single digit to two digit number, crossing tens | Add 6 to 89 | A | | | 58% | 53% | 6% |
| 3 | 'Share' between two | Share 10 sweets equally between two | D | E | | 79% | 74% | 5% |
| 2 | Addition of money,in a word problem | T. has 36p. R. gives her 10p. How much now ? | A | £ | | 78% | 75% | 4% |
| 19 | '....is more than....' How many more ? | 45 is more than 7. How many more ? | S | | | 13% | 9% | 3% |
| 22 | Division of length,in a word problem, no remainder | String is 84cm. Cut in 4.Length of each piece ? | D | L | | 13% | 10% | 3% |
| 9 | 'Share' among 6 | 60p shared among 6 children. How much each ? | D | £ | | 63% | 60% | 3% |
| 5 | 'Plus' with single digits | Four plus six | A | | | 75% | 73% | 2% |
| 18 | 'Remainder' when dividing by 6 | Remainder when 27 is divided by 6 | D | | | 9% | 7% | 2% |
| 4 | 'Take away' single digit from a teens number | Twelve take away four | S | | | 77% | 75% | 2% |
| 1 | 'Add' three single digit numbers | Five add three add two | A | | | 88% | 87% | 2% |
| 23 | 'Divide by' 100, no remainder | Divide 700 by 10( | D | | | 14% | 13% | 1% |
| 6 | 'Times' by 10 | Eight times ten | M | | | 71% | 70% | 1% |
| 24 | What number multiplied by itself makes....?' | What number multiplied by itself makes 36 ? | N | | | 12% | 12% | 1% |
| 8 | Multiplication in a word problem, single digits | 3 dominoes. Each has 5 dots. Dots altogether ? | M | E | | 79% | 78% | 0% |
| 20 | 'Multiplied by' with single digit numbers | Seven multiplied by nine | M | | | 9% | 10% | 0% |

# National Numeracy Project - June 1998
## Year : 3 Cohort : 1

| Project Level | | |
|---|---|---|
| | No. of Round 1 Pupils | 6269 |
| | No. of Round 2 Pupils | 6656 |
| | No. of Round 3 Pupils | 7206 |

**Chart 1 : Overall Test Score distribution**




*The above chart shows the percentage of pupils in the project in the different age-standardised score bands for the third round of testing and compared with the National standardised score distribution. Similar distributions for the written and mental tests are shown below.*

**Chart 2: Written Test Score distribution**

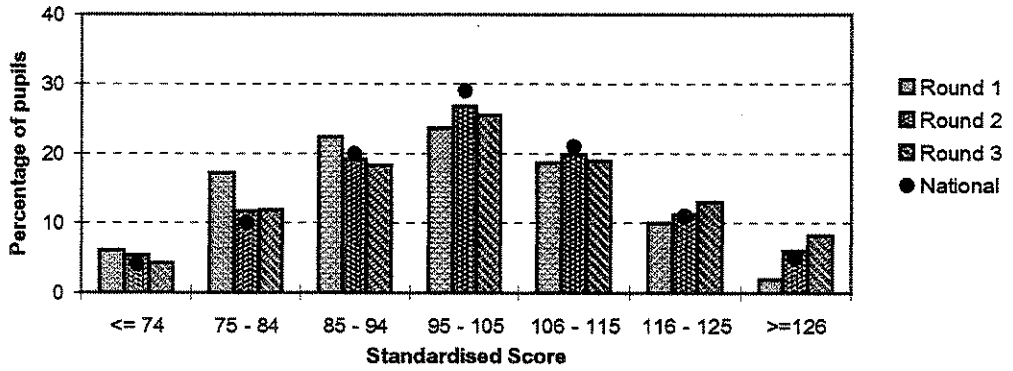
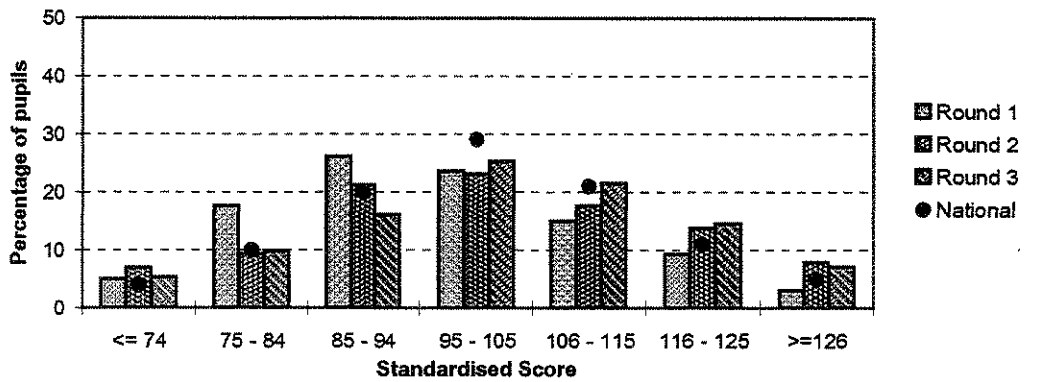



**Chart 3 : Mental Test Score distribution**



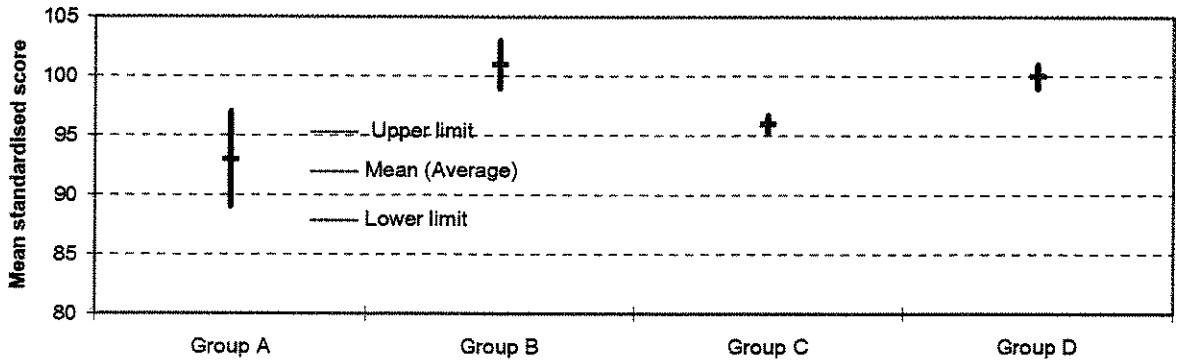
*(continued)*

## National Numeracy Project - June 1998

**Year : 3 Cohort : 1**

| Project Level | | |
|---|---|---|
| | No. of Round 1 Pupils | 6269 |
| | No. of Round 2 Pupils | 6656 |
| | No. of Round 3 Pupils | 7206 |

**Example Chart : Mean scores**




*The above example shows, for each of four groups, the mean (average) standardised score and an estimate of the "95% confidence band" for each of these mean scores. Such a band means that we can be 95% certain that the mean score lies between the upper and lower limits of the vertical line, as annotated for Group A. If the top of a vertical line is lower than the bottom of another vertical line, then it is likely that there is a real difference between the two groups. If on the other hand the vertical lines overlap, then it is likely that any difference between the two scores is not significant. In this example, the difference between Groups A and B is likely to be real but the difference between Groups B and D is not significant.*

**Chart 4 : Mean scores for third round of testing**

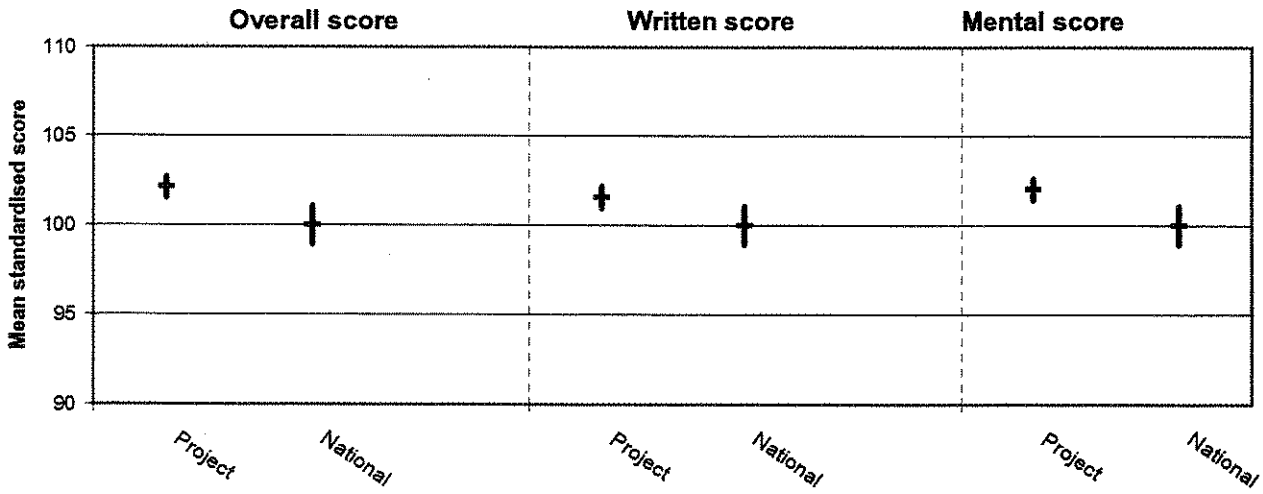



*Chart 4 shows the mean (average) score for the Project and compares it with the National Standardisation sample.*

*(continued)*

## National Numeracy Project - June 1998
## Year : 3 Cohort : 1

| Project Level | No. of Round 1 Pupils | 6269 |
|---|---|---|
| | No. of Round 2 Pupils | 6656 |
| | No. of Round 3 Pupils | 7206 |

**Chart 5 : Mean project scores for third round of testing**

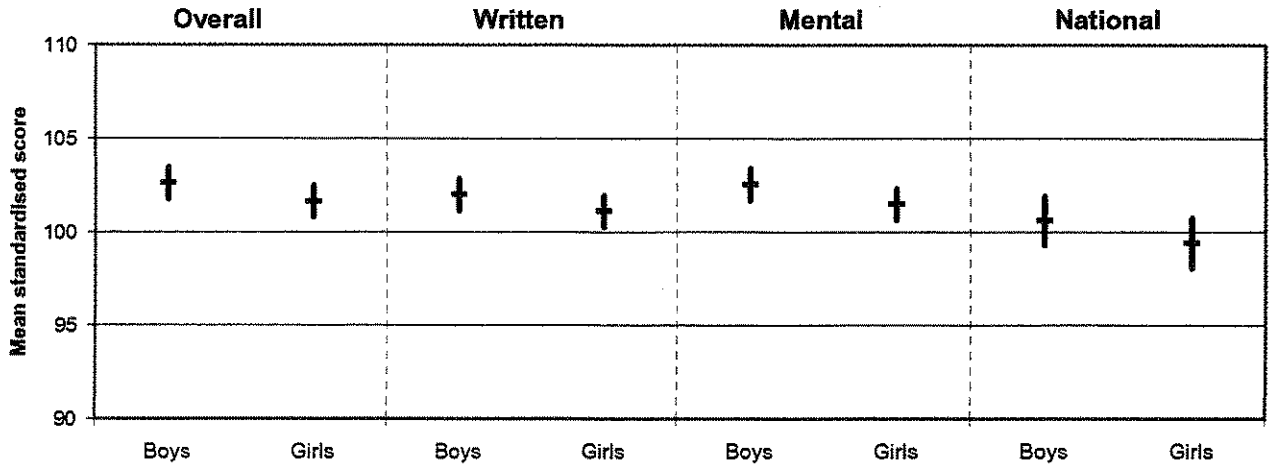



*Chart 5 shows the mean (average) score in the project separately for boys and girls and compares it with the National Standardisation sample.*

**Chart 6 : Mean Standardised scores by term of Birth**

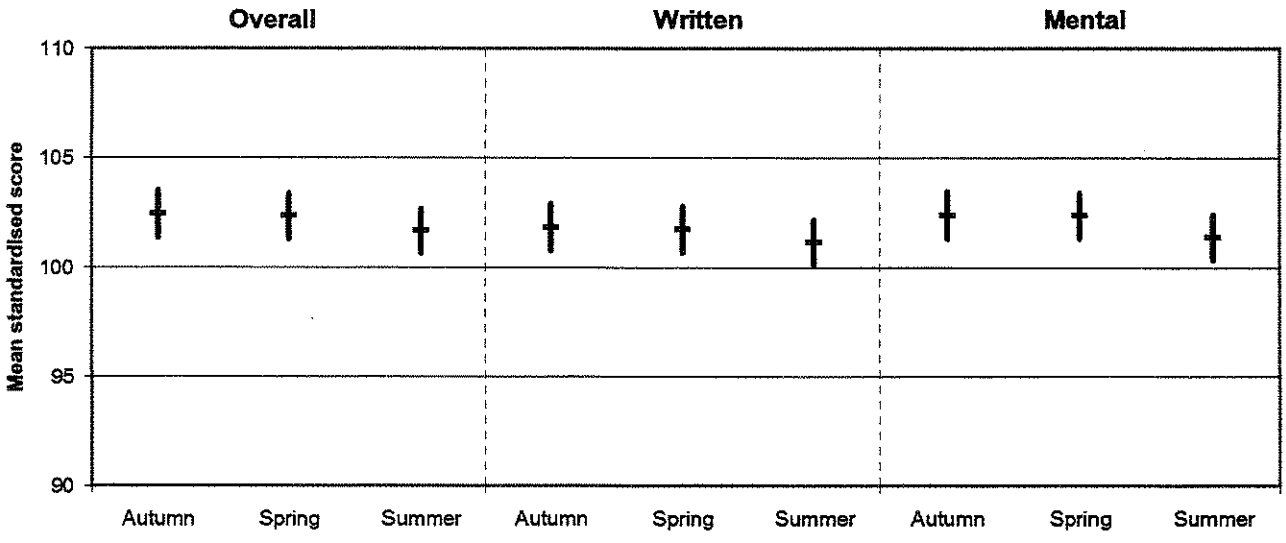



*Chart 6 shows the comparison of the mean (average) score of pupils born in the Autumn, Spring and Summer.*

*(continued)* **National Numeracy Project - June 1998**

**Year : 3 Cohort : 2**

| **Project Level** | **No. of Round 1 Pupils** | **6269** |
|---|---|---|
| | **No. of Round 2 Pupils** | **6656** |
| | **No. of Round 3 Pupils** | **7206** |

**Chart 7 : Mean Progress scores from Round 2 to Round 3**

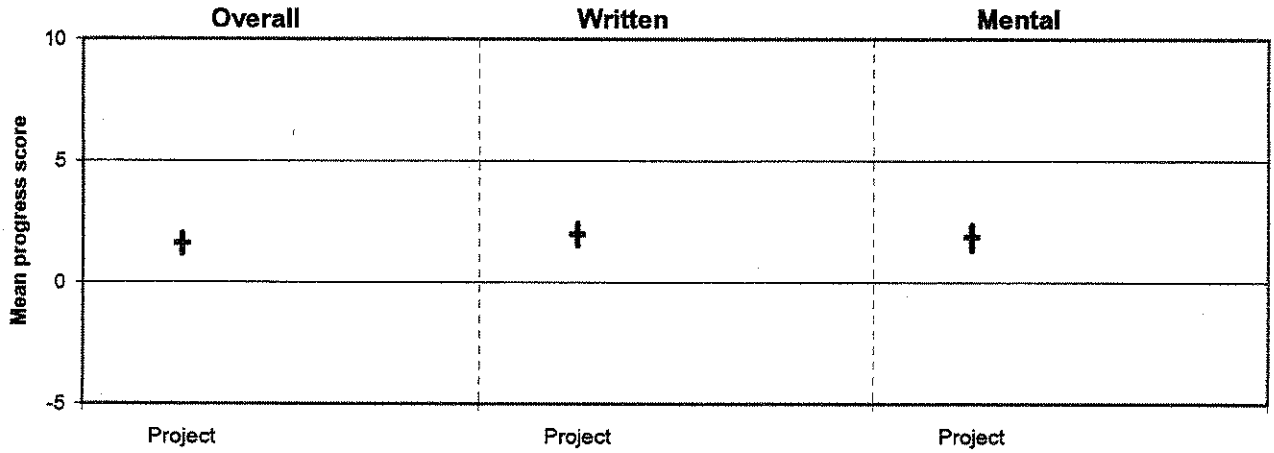
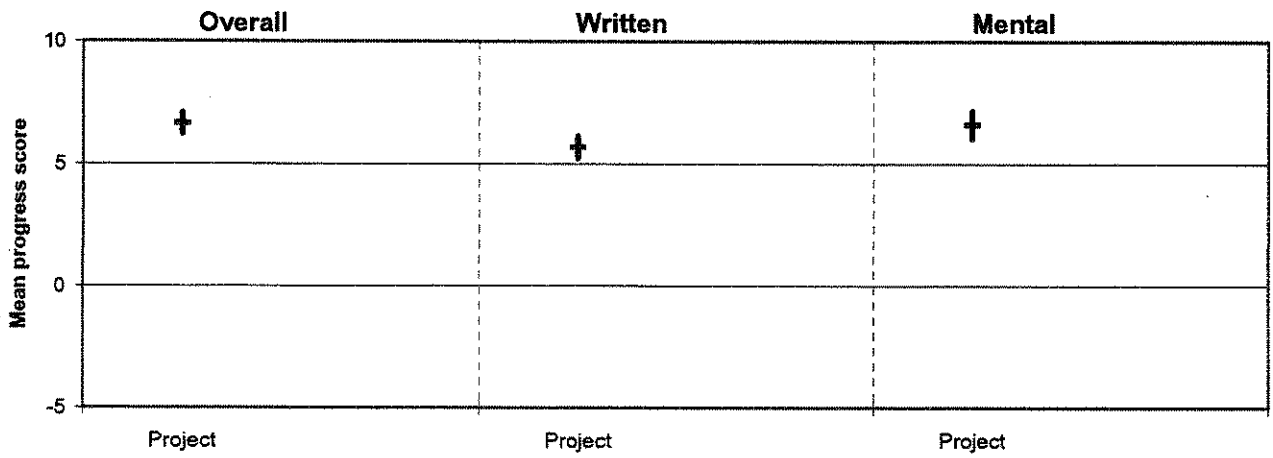



*Chart 7 shows the average progress made by the pupils between the second and third rounds of testing. Progress is measured by the difference in the standardised scores between both rounds of testing. The average progress score for your LEA is compared with the pupils in the Project.*
*Any line which lies completely above the horizontal zero line indicates significant progress from Round 2 to Round 3.*

*Chart 8 below is a similar plot for the progress made from the first to the third rounds of testing, that is the total amount of progress made during the project, in terms of increase in standardised score points over and above what might have been expected due to maturation.*

**Chart 8 : Mean Progress scores from Round 1 to Round 3**



# Cohort 1 – Year 4

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# Project Report 1 - National Numeracy Project - June 1998
## Cohort 1 - Year 4 - Mean Standardised Test Scores
## Summary by background data- ALL LEAs

| | | Written Round 3 | | Mental Round 3 | | Overall Round 3 | | Written Progress | | Mental Progress | | Overall Progress | | No. of pupils absent | Total no. of pupils | Percent of pupils |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | | | |
| Total | | 102.2 | 16.0 | 103.5 | 16.3 | 103.0 | 16.0 | 6.0 | 10.1 | 8.5 | 12.6 | 7.6 | 9.5 | 348 | 7936 | 100% |
| Gender | Boys | 102.5 | 16.5 | 104.0 | 16.7 | 103.4 | 16.5 | 6.4 | 10.3 | 8.6 | 12.7 | 7.9 | 9.7 | 186 | 4121 | 52% |
| | Girls | 101.9 | 15.5 | 103.0 | 15.8 | 102.7 | 15.4 | 5.6 | 9.9 | 8.3 | 12.5 | 7.3 | 9.3 | 159 | 3807 | 48% |
| | Not known | 95.8 | 16.0 | 95.4 | 17.8 | 95.6 | 16.1 | | | | | | | 3 | 8 | 0% |
| Ethnic group | White | 103.3 | 15.9 | 104.4 | 16.1 | 104.1 | 15.8 | 5.9 | 10.0 | 8.0 | 12.2 | 7.3 | 9.2 | 269 | 5547 | 70% |
| | Black Caribbean | 101.5 | 16.0 | 103.4 | 15.9 | 102.6 | 15.7 | 8.9 | 11.5 | 11.8 | 15.1 | 10.8 | 11.2 | 3 | 296 | 4% |
| | Black African | 100.5 | 16.4 | 102.6 | 16.8 | 101.6 | 16.5 | 8.4 | 11.0 | 12.3 | 15.5 | 10.8 | 10.8 | 6 | 150 | 2% |
| | Black Other | 100.7 | 15.2 | 104.0 | 15.9 | 102.1 | 15.4 | 5.4 | 10.3 | 8.5 | 13.2 | 7.1 | 10.1 | 1 | 98 | 1% |
| | Indian | 101.8 | 16.4 | 104.0 | 15.6 | 102.9 | 16.1 | 5.3 | 10.2 | 9.3 | 11.8 | 7.3 | 9.5 | 3 | 360 | 5% |
| | Pakistani | 97.1 | 15.6 | 98.8 | 15.9 | 97.8 | 15.6 | 5.0 | 9.0 | 8.3 | 12.4 | 6.9 | 8.7 | 20 | 624 | 8% |
| | Bangladeshi | 99.0 | 15.4 | 99.3 | 16.8 | 99.4 | 15.7 | 7.0 | 11.1 | 10.4 | 14.3 | 9.2 | 10.7 | 23 | 465 | 6% |
| | Other | 102.4 | 16.6 | 103.5 | 17.6 | 103.1 | 16.9 | 7.0 | 10.7 | 10.0 | 13.7 | 8.8 | 10.5 | 18 | 376 | 5% |
| | Not known | 96.5 | 17.9 | 100.5 | 19.2 | 97.7 | 18.4 | | | | | | | 5 | 20 | 0% |
| Receives Free School Meals? | Yes | 97.5 | 15.6 | 98.9 | 16.0 | 98.2 | 15.6 | 5.7 | 10.3 | 8.2 | 12.9 | 7.4 | 9.7 | 138 | 3015 | 38% |
| | No | 105.7 | 15.6 | 106.9 | 15.7 | 106.5 | 15.5 | 6.4 | 10.1 | 8.8 | 12.3 | 8.0 | 9.4 | 166 | 4330 | 55% |
| | Not known | 101.3 | 14.8 | 102.5 | 15.8 | 102.0 | 15.0 | 4.5 | 9.0 | 7.2 | 13.2 | 6.1 | 9.2 | 44 | 591 | 7% |
| Special Educational Needs level | None | 106.4 | 14.4 | 107.5 | 14.9 | 107.3 | 14.3 | 6.3 | 9.8 | 9.1 | 12.6 | 8.0 | 9.3 | 218 | 5679 | 72% |
| | Stage 1 | 93.5 | 13.8 | 95.4 | 13.8 | 94.2 | 13.6 | 6.0 | 10.0 | 8.8 | 11.6 | 7.8 | 9.1 | 41 | 847 | 11% |
| | Stage 2 | 91.6 | 15.1 | 93.0 | 15.5 | 92.1 | 15.1 | 5.8 | 11.5 | 6.3 | 12.5 | 6.6 | 10.4 | 39 | 753 | 9% |
| | Stage 3 | 84.5 | 13.4 | 87.4 | 14.1 | 85.2 | 13.5 | 3.0 | 10.1 | 5.5 | 12.1 | 4.8 | 9.9 | 17 | 261 | 3% |
| | Stage 4 or above | 84.2 | 15.8 | 85.5 | 15.9 | 84.4 | 15.6 | 4.3 | 11.5 | 5.8 | 13.3 | 5.7 | 10.8 | 14 | 190 | 2% |
| | Not known | 99.4 | 13.7 | 99.7 | 15.1 | 99.9 | 13.9 | 4.2 | 11.1 | 4.2 | 13.6 | 4.8 | 10.8 | 19 | 206 | 3% |
| Stage of Learning English | New to English | 85.7 | 14.0 | 86.9 | 14.8 | 85.8 | 13.9 | 4.6 | 10.8 | 4.6 | 13.0 | 5.5 | 9.7 | 7 | 111 | 1% |
| | Becoming familiar with English | 95.6 | 15.6 | 96.1 | 15.8 | 95.9 | 15.5 | 6.5 | 10.6 | 9.2 | 13.1 | 8.4 | 10.1 | 16 | 542 | 7% |
| | Becoming confident with English | 99.3 | 15.0 | 101.0 | 15.4 | 100.1 | 15.0 | 6.0 | 10.4 | 9.9 | 13.6 | 8.1 | 10.1 | 21 | 674 | 8% |
| | Very fluent in most contexts | 105.9 | 14.9 | 108.0 | 15.0 | 107.1 | 14.8 | 7.0 | 10.0 | 11.3 | 12.7 | 9.3 | 9.6 | 13 | 470 | 6% |
| | English first language | 103.4 | 15.9 | 104.7 | 16.1 | 104.2 | 15.9 | 6.0 | 10.1 | 8.3 | 12.4 | 7.6 | 9.4 | 271 | 5916 | 75% |
| | Not known | 96.8 | 13.8 | 97.7 | 15.2 | 97.2 | 13.9 | 3.0 | 8.6 | 3.0 | 11.7 | 3.3 | 7.8 | 20 | 223 | 3% |

* Number of pupils absent from overall testing

# Project Report 1 - National Numeracy Project - June 1998
## Cohort 1 - Year 4 - Mean Standardised Test Scores
## Summary by background data- ALL LEAs

| | | Written Round 3 | | Mental Round 3 | | Overall Round 3 | | Written Progress | | Mental Progress | | Overall Progress | | No. of pupils absent | Total no. of pupils | Percent of pupils |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | | | |
| No. of terms Primary Education | 4 terms or less | 93.6 | 17.2 | 95.8 | 16.4 | 94.3 | 16.6 | 1.4 | 7.9 | 6.1 | 8.1 | 3.9 | 6.1 | 2 | 32 | 0% |
| | 6 | 101.1 | 18.6 | 101.7 | 19.6 | 101.6 | 19.1 | 9.1 | 14.7 | 7.8 | 15.8 | 8.5 | 13.8 | 1 | 82 | 1% |
| | 9 | 101.9 | 16.0 | 103.5 | 16.0 | 102.8 | 15.7 | 5.9 | 10.0 | 6.8 | 12.7 | 6.7 | 9.4 | 7 | 285 | 4% |
| | 12 | 102.7 | 16.0 | 103.9 | 16.2 | 103.5 | 16.0 | 6.1 | 10.1 | 8.5 | 12.4 | 7.7 | 9.4 | 242 | 6028 | 76% |
| | 15 | 101.0 | 14.6 | 101.5 | 15.2 | 101.6 | 14.6 | 6.2 | 10.0 | 9.0 | 13.6 | 8.0 | 10.4 | 23 | 378 | 5% |
| | 18 | 110.4 | 11.8 | 111.9 | 14.0 | 111.7 | 12.7 | 10.5 | 7.3 | 9.9 | 12.3 | 11.1 | 8.2 | 2 | 49 | 1% |
| | Not known | 100.0 | 15.9 | 102.3 | 16.8 | 101.1 | 16.1 | 4.8 | 9.8 | 8.9 | 13.4 | 7.0 | 9.5 | 71 | 1082 | 14% |
| KS1 Teacher Assessment level- Number | 1 | 89.6 | 12.6 | 91.3 | 12.6 | 90.1 | 12.2 | 4.9 | 10.6 | 7.1 | 12.1 | 6.5 | 9.7 | 55 | 1365 | 17% |
| | 2 | 106.6 | 12.9 | 107.6 | 13.4 | 107.5 | 12.7 | 6.8 | 10.2 | 9.1 | 12.7 | 8.4 | 9.5 | 127 | 3518 | 44% |
| | 3 | 119.9 | 10.5 | 119.7 | 11.7 | 120.8 | 10.4 | 5.7 | 8.0 | 8.2 | 10.7 | 7.0 | 7.8 | 18 | 587 | 7% |
| | Not Known | 98.6 | 16.4 | 100.5 | 17.3 | 99.5 | 16.7 | 5.4 | 10.0 | 8.5 | 13.3 | 7.2 | 9.7 | 148 | 2466 | 31% |
| KS1 Mathematics Task/Test level | 1 | 89.4 | 12.2 | 91.3 | 12.4 | 89.9 | 11.9 | 5.0 | 10.2 | 7.8 | 12.2 | 6.8 | 9.4 | 53 | 1221 | 15% |
| | 2 | 105.5 | 13.1 | 107.2 | 13.4 | 106.6 | 13.0 | 6.5 | 9.9 | 8.9 | 12.6 | 8.0 | 9.3 | 24 | 662 | 8% |
| | 2A | 112.6 | 11.4 | 113.4 | 12.7 | 113.7 | 11.3 | 7.3 | 9.7 | 9.4 | 12.3 | 8.7 | 9.0 | 30 | 1019 | 13% |
| | 2B | 106.1 | 11.3 | 107.4 | 12.4 | 107.1 | 11.1 | 7.5 | 10.4 | 10.2 | 12.6 | 9.2 | 9.5 | 41 | 942 | 12% |
| | 2C | 100.0 | 12.5 | 101.4 | 13.1 | 100.8 | 12.1 | 7.3 | 11.2 | 10.2 | 13.3 | 9.3 | 10.4 | 41 | 1116 | 14% |
| | 3 | 119.2 | 10.3 | 119.1 | 11.9 | 120.1 | 10.4 | 6.2 | 8.3 | 8.6 | 11.6 | 7.6 | 8.2 | 18 | 826 | 10% |
| | Not Known | 96.2 | 16.2 | 97.7 | 16.7 | 96.9 | 16.3 | 3.8 | 9.9 | 5.8 | 12.6 | 5.2 | 9.4 | 141 | 2150 | 27% |

*** Number of pupils absent from overall testing**

# Project Report 2 - National Numeracy Project - June 1998
# Cohort 1 - Round 3 - Mean Standardised Test Scores
# Summary by LEA

*Year Group: 4*

| | | Written | | Mental | | Overall | | No. of pupils absent | Total no. of pupils |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | | |
| Total | | 102.2 | 16.0 | 103.5 | 16.3 | 103.0 | 16.0 | 348 | 7936 |
| LEA | 1 | 101.8 | 16.9 | 101.6 | 16.3 | 102.1 | 16.5 | 19 | 473 |
| | 2 | 107.3 | 15.0 | 108.5 | 14.6 | 108.2 | 14.7 | 32 | 754 |
| | 3 | 102.9 | 15.6 | 102.8 | 15.3 | 103.3 | 15.4 | 4 | 408 |
| | 4 | 101.7 | 16.3 | 104.3 | 16.5 | 103.0 | 16.3 | 42 | 661 |
| | 5 | 102.0 | 15.6 | 103.3 | 16.2 | 102.8 | 15.7 | 34 | 762 |
| | 6 | 101.2 | 17.5 | 102.4 | 18.4 | 101.9 | 17.7 | 26 | 523 |
| | 7 | 101.0 | 15.7 | 104.1 | 16.9 | 102.4 | 15.9 | 25 | 436 |
| | 8 | 103.3 | 15.1 | 105.4 | 15.9 | 104.4 | 15.2 | 23 | 557 |
| | 9 | 104.0 | 15.5 | 104.6 | 15.9 | 104.6 | 15.5 | 32 | 662 |
| | 10 | 100.3 | 15.6 | 101.2 | 17.3 | 101.0 | 16.1 | 25 | 575 |
| | 12 | 97.9 | 15.2 | 100.1 | 15.6 | 98.9 | 15.2 | 46 | 918 |
| | 14 | 103.8 | 16.6 | 104.8 | 15.8 | 104.5 | 16.3 | 16 | 605 |
| | 15 | 102.4 | 15.9 | 102.2 | 15.9 | 102.7 | 15.9 | 24 | 602 |

# Project Report 3 - National Numeracy Project - June 1998
## Cohort 1 - Round 3 - Mean Progress Standardised Test Scores
## Summary by LEA

*Year Group: 4*

| | | Written Progress Score: Round3 - Round2 | | Mental Progress Score: Round3 - Round2 | | Overall Progress Score: Round3 - Round2 | | Written Progress Score: Round3 - Round1 | | Mental Progress Score: Round3 - Round1 | | Overall Progress Score: Round3 - Round1 | | No. of pupils absent | Total no. of pupils |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | | |
| Total | | 3.9 | 9.8 | 4.7 | 12.0 | 4.3 | 9.1 | 6.0 | 10.1 | 8.5 | 12.6 | 7.6 | 9.5 | 1564 | 7936 |
| LEA | 1 | 6.0 | 10.4 | 4.3 | 12.9 | 5.5 | 9.7 | 7.9 | 12.0 | 8.3 | 13.8 | 8.8 | 11.3 | 97 | 473 |
| | 2 | 3.9 | 10.4 | 4.0 | 11.2 | 4.0 | 9.5 | 7.6 | 10.4 | 9.8 | 11.8 | 9.2 | 9.5 | 112 | 754 |
| | 3 | 1.1 | 10.0 | 1.3 | 10.6 | 1.2 | 9.2 | 4.7 | 9.7 | 4.5 | 10.5 | 5.2 | 8.7 | 69 | 408 |
| | 4 | 4.1 | 9.3 | 6.4 | 11.7 | 5.1 | 8.7 | 4.8 | 10.0 | 9.4 | 12.6 | 7.2 | 9.2 | 111 | 661 |
| | 5 | 3.8 | 8.8 | 5.3 | 11.1 | 4.4 | 7.9 | 5.2 | 9.2 | 7.3 | 11.3 | 6.5 | 8.6 | 163 | 762 |
| | 6 | 4.5 | 11.2 | 5.7 | 14.8 | 5.2 | 10.9 | 8.1 | 11.3 | 11.6 | 16.0 | 10.1 | 11.4 | 143 | 523 |
| | 7 | 3.6 | 11.1 | 5.6 | 12.4 | 4.5 | 10.0 | 4.8 | 9.8 | 7.0 | 12.9 | 6.1 | 9.5 | 110 | 436 |
| | 8 | 3.6 | 8.7 | 5.2 | 11.3 | 4.2 | 8.2 | 5.5 | 9.8 | 9.5 | 12.1 | 7.7 | 9.1 | 80 | 557 |
| | 9 | 3.9 | 9.6 | 3.7 | 11.3 | 3.8 | 8.6 | 6.3 | 9.6 | 7.6 | 12.4 | 7.4 | 9.2 | 120 | 662 |
| | 10 | 4.0 | 10.4 | 6.1 | 14.3 | 4.9 | 9.9 | 6.7 | 10.8 | 10.7 | 14.2 | 9.2 | 10.6 | 138 | 575 |
| | 12 | 3.4 | 9.4 | 5.0 | 11.5 | 4.1 | 8.8 | 4.2 | 9.1 | 8.6 | 11.7 | 6.5 | 8.5 | 229 | 918 |
| | 14 | 5.0 | 9.2 | 5.6 | 11.6 | 5.4 | 8.7 | 7.4 | 9.9 | 10.4 | 11.9 | 9.3 | 9.2 | 84 | 605 |
| | 15 | 4.1 | 8.7 | 2.4 | 11.0 | 3.7 | 7.9 | 5.8 | 9.6 | 4.6 | 11.4 | 6.0 | 8.6 | 108 | 602 |

# Project Report 4 - National Numeracy Project - June 1998
# Cohort 1 - Round 3 - Mean Progress Standardised Test Scores
# Summary by LEA

*Year Group: 4*

| | | Written Rounds (2 - 1) | Mental Rounds (2 - 1) | Overall Rounds (2 - 1) | Written Rounds (3 - 2) | Mental Rounds (3 - 2) | Overall Rounds (3 - 2) | Written Rounds (3 - 1) | Mental Rounds (3 - 1) | Overall Rounds (3 - 1) | No. of pupils absent | Total no. of pupils |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Mean | Mean | Mean | Mean | Mean | Mean | Mean | Mean | | |
| Total | | 2.1 | 3.8 | 3.3 | 3.9 | 4.7 | 4.3 | 6.0 | 8.5 | 7.6 | 1564 | 7936 |
| LEA | 1 | 2.1 | 4.6 | 3.8 | 6.0 | 4.3 | 5.5 | 7.9 | 8.3 | 8.8 | 97 | 473 |
| | 2 | 3.6 | 5.5 | 5.0 | 3.9 | 4.0 | 4.0 | 7.6 | 9.8 | 9.2 | 112 | 754 |
| | 3 | 3.6 | 3.1 | 3.9 | 1.1 | 1.3 | 1.2 | 4.7 | 4.5 | 5.2 | 69 | 408 |
| | 4 | .7 | 3.0 | 2.2 | 4.1 | 6.4 | 5.1 | 4.8 | 9.4 | 7.2 | 111 | 661 |
| | 5 | 1.3 | 2.2 | 2.2 | 3.8 | 5.3 | 4.4 | 5.2 | 7.3 | 6.5 | 163 | 762 |
| | 6 | 3.4 | 5.8 | 5.0 | 4.5 | 5.7 | 5.2 | 8.1 | 11.6 | 10.1 | 143 | 523 |
| | 7 | 1.5 | 1.3 | 1.8 | 3.6 | 5.6 | 4.5 | 4.8 | 7.0 | 6.1 | 110 | 436 |
| | 8 | 1.9 | 4.2 | 3.4 | 3.6 | 5.2 | 4.2 | 5.5 | 9.5 | 7.7 | 80 | 557 |
| | 9 | 2.3 | 3.7 | 3.5 | 3.9 | 3.7 | 3.8 | 6.3 | 7.6 | 7.4 | 120 | 662 |
| | 10 | 3.0 | 4.7 | 4.5 | 4.0 | 6.1 | 4.9 | 6.7 | 10.7 | 9.2 | 138 | 575 |
| | 12 | .3 | 3.3 | 2.0 | 3.4 | 5.0 | 4.1 | 4.2 | 8.6 | 6.5 | 229 | 918 |
| | 14 | 2.7 | 5.5 | 4.4 | 5.0 | 5.6 | 5.4 | 7.4 | 10.4 | 9.3 | 84 | 605 |
| | 15 | 1.6 | 2.4 | 2.4 | 4.1 | 2.4 | 3.7 | 5.8 | 4.6 | 6.0 | 108 | 602 |

# National Numeracy Project - June 1998
## Year : 4 Cohort: 1

### Item Facilities Report

| Item No. | Written Test | Mathematical content | | | | Project | National | Project - National Difference |
|---|---|---|---|---|---|---|---|---|
| 40 | Number sequence, with negative numbers, subtract 3 | Write the next number: 13, 10, 7, 4, 1, _ | N | | | 31% | 11% | 20% |
| 21 | Fraction recognition (half) | Recognise that half the square is shaded | F | | | 58% | 45% | 14% |
| 34 | Find perimeter of rectangle | Rectangle 14cm x 10 cm. What is the perimeter? | A | I | | 53% | 40% | 13% |
| 37 | Recognise prime numbers | Write a prime number greater than 13 | N | | | 20% | 9% | 11% |
| 31 | Approximate addition of three digit numbers | Best approximation for 897+ 406. 800+400, 950+410, 97+400, 900+400, 800+5 | G | | | 34% | 23% | 11% |
| 36 | Percentage recognition | What percentage of rectangle is shaded? (50%) | F | | | 24% | 14% | 9% |
| 16 | Order decimal numbers | Arrange from smallest: 3.6, 3.2, 12.9, 0.5, and 2.3 | P | F | | 78% | 71% | 8% |
| 27 | 2 step word problem, involving x and + | 3 oranges @ 11p, and 1 pineapple @ 95p | A | £ | | 40% | 32% | 7% |
| 20 | Multiply three digit number by 3 (no carrying) | 103 x 3 = _ | M | X | | 52% | 45% | 7% |
| 26 | Numbers divisible by 5 with no remainder | Ring 2 numbers from: 8, 36, 15, 53, 11, 40 | N | | | 55% | 48% | 7% |
| 23 | | 46 ÷ _ = 23 | D | B | | 43% | 37% | 7% |
| 17 | Doubling | Double 17 | M | | | 74% | 68% | 6% |
| 32 | Subtract length (in mm and cm) in a word problem | Cut 36cm from 2m length. How much left? | S | L | | 21% | 15% | 6% |
| 12 | | 60 - 7 = _ | S | X | | 73% | 68% | 6% |
| 33 | Subtract fraction from a mixed number | 1½ - ¼ = _ | S | F | | 26% | 20% | 6% |
| 43 | Divide three digit number by 8, no remainder | 816 ÷ 8 = _ | D | X | | 16% | 11% | 5% |
| 35 | Convert centimetres to millimetres | How many millimetres is 11 centimetres? | M | L | | 24% | 18% | 5% |
| 45 | Multiply a decimal by 10 | 7.5 x 10 = _ | M | F | | 12% | 7% | 5% |
| 13 | Place value | Ring number with 7 tens. 7, 69, 78, 107, 707 | P | | | 66% | 62% | 5% |
| 8 | | 86 - _ = 67 | S | B | | 78% | 73% | 5% |
| 25 | Read weight from scale | Read 400g from scale 0 to 3 kg - marked every 500g | R | | | 52% | 48% | 5% |
| 30 | Division of two digit number by 7, no remainder | 84 ÷ 7 = _ | D | X | | 32% | 28% | 4% |
| 14 | Subtract times (minutes) in word problem | Analogue clock. How long from 1:20 to 1:45? | S | T | | 57% | 53% | 4% |
| 10 | Add three digit numbers, no crossing | 332 + 514 = _ | A | X | | 76% | 72% | 4% |
| 11 | Estimate to nearest £10 | Ring nearest to £10. £10.35, £11.00, £9.91, £10.26, £9.79 | G | £ | | 69% | 65% | 4% |
| 28 | Addition of three digit number, with carrying | 435 + 397 = _ | A | X | | 49% | 45% | 3% |
| 39 | Divide two digit number by 4, with remainder | 93 ÷ 4 = _ | A | X | | 13% | 9% | 3% |
| 9 | Add two digit numbers, crossing tens | 27 + 36 = _ | A | X | | 75% | 72% | 3% |
| 24 | Multiply two digit number by 6, with carrying | 95 x 6 = _ | M | X | | 18% | 15% | 3% |
| 19 | Division of two digit number by 3, in word problem | 24 seeds in 3 rows. Seeds in each row? | D | E | | 55% | 52% | 3% |

# National Numeracy Project - June 1998
## Year : 4 Cohort: 1

### Item Facilities Report

| Item No. | Written Test | Mathematical content | | | | Project | National | Project - National Difference |
|---|---|---|---|---|---|---|---|---|
| 42a | Finding a fraction of an area | Grid of cm squares is 6cm * 10cm. Half is shaded. How many cm squares are shaded? | I | F | | 12% | 10% | 2% |
| 41 | Average speed, in word problem | Car travels 120 miles in 3 hours. Average speed? | D | T | | 14% | 12% | 2% |
| 42b | Finding a percentage of an area | How many cm squares are there in 25% of the grid? | % | | | 7% | 5% | 2% |
| 44 | Percentage of money | What is 75% of £160? | % | | | 5% | 3% | 2% |
| 2 | Read a scale (whole numbers) | Scale numbered in 5s from 0 to 15, read 8 | R | | | 83% | 81% | 2% |
| 5 | | _ + _ = 70 | A | O | | 92% | 90% | 2% |
| 47 | Multiply two digit numbers | 37 x 28 = _ | M | X | | 2% | 1% | 2% |
| 38 | Subtract four digit number from 3000 | 3000 - 1997 = _ | S | X | | 15% | 13% | 1% |
| 22 | Multiply two digit number by 10, in word problem | 20 packs, 10 boxes in each. How many boxes? (20*10) | M | E | | 50% | 49% | 1% |
| 46 | Add fractions | 5/8 + ¼ = _ | A | F | | 3% | 2% | 1% |
| 18 | | 75 - _ = 67 | S | B | | 59% | 58% | 1% |
| 29 | Subtraction of three digit number, crossing tens | 354 - 159 = _ | S | X | | 21% | 20% | 0% |
| 6 | Subtract money, in a word problem | Bananas cost 18p. Meera has 6p. How much more does she need? | S | £ | | 82% | 82% | 0% |
| 1 | Number line with numbers less than 10 (decreasing) | Missing numbers in sequence 9, 8, 7, _, _, 4 | N | | | 98% | 98% | 0% |
| 4 | Add 10 to a two digit number | 83 + 10 = _ | A | X | | 93% | 93% | 0% |
| 7 | Read a graph | Bar charts, scale in ones. Read seaweed | R | H | | 92% | 94% | -1% |
| 15a | Multiply single digit numbers, in word problem | 7 cards of buttons, each with 5 (7 x 5) | M | E | | 71% | 73% | -2% |
| 3 | Subtract single digit numbers, in word problem | Emma has 4 apples & Jane 7. How many more has Jane? | S | E | | 81% | 83% | -2% |
| 15b | Two step word problem (+ and -) | 2 cards of round buttons & 3 of square | M | E | | 60% | 63% | -3% |

## National Numeracy Project - June 1998
## Year : 4 Cohort: 1

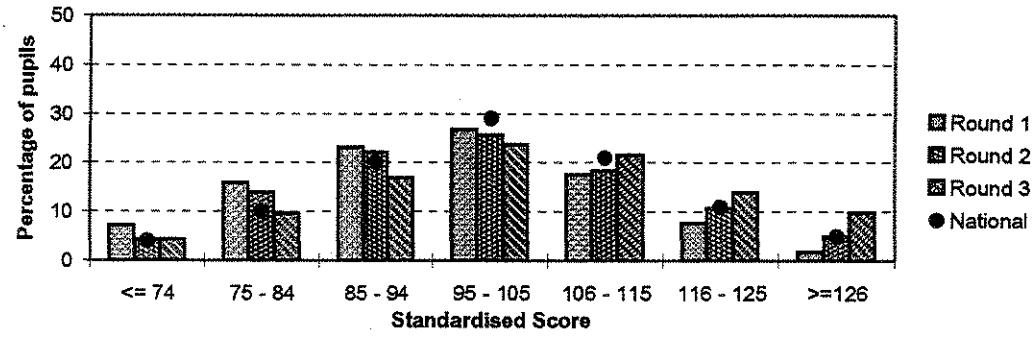
### Item Facilities Report

| Item No. | Mental Test | Mathematical content | | | | Project | National | Project - National Difference |
|---|---|---|---|---|---|---|---|---|
| 7 | 'Write to nearest hundred' | Write 254 to the nearest hundred | G | | | 58% | 39% | 19% |
| 12 | 'Multiplied by itself' | What number multiplied by itself gives 36? | M | B | | 37% | 22% | 15% |
| 9 | 'Write in figures' | Write in figures the number 1072 | P | | | 67% | 52% | 15% |
| 13 | 'Subtract', using two digit numbers | What is 89 subtract 25? | S | | | 32% | 23% | 9% |
| 20 | 'Divide by' 2, no remainder | Divide 16 by 2 | D | | | 57% | 49% | 8% |
| 19 | 'Multiplied by' 6 | 15 multiplied by 6 | M | | | 17% | 9% | 8% |
| 17 | 'Divide' by 9, no remainder | 72 divided by 9 | D | | | 25% | 18% | 7% |
| 21 | 'One fifth of' | What is one fifth of twenty? | F | | | 24% | 17% | 7% |
| 15 | Divide' by 100, no remainder | Divide 700 by 100 | D | | | 29% | 22% | 7% |
| 18 | Multiplication of money, in a word problem | A T-shirt costs £3.95. How much do 2 cost? | A | £ | | 23% | 17% | 7% |
| 16 | 'Take from' | What must I take from 43 to leave 9? | S | B | | 20% | 13% | 7% |
| 10 | 'I take away a number....it leaves...what is the number?' | I take away a number from 81. It leaves 72. What is the number? | S | B | | 55% | 48% | 6% |
| 6 | 'Total' of 4 single digit numbers, with pairs of numbers making ten | What is the total of 8, 3, 7, and 2? | A | | | 65% | 59% | 6% |
| 14 | 'Difference' | Write two numbers which have a difference of 12 | S | O | | 21% | 16% | 6% |
| 22 | 'Share equally among' 4 | Share 92 equally among 4 | D | | | 10% | 5% | 5% |
| 8 | 'More than' | What is 8 more than 72? | A | | | 62% | 59% | 3% |
| 3 | 'How many altogether?', add ten to a two digit number | How many are 39 and 10 altogether? | A | | | 85% | 82% | 3% |
| 24 | '15 percent of' | What is 15% of 200? | F | | | 3% | 2% | 1% |
| 4 | 'Lots of' ten | What is 8 lots of 10? | M | | | 86% | 85% | 1% |
| 2 | 'Add', using single digit numbers, crossing ten | What is 5 add 9? | A | | | 91% | 90% | 1% |
| 23 | 'Estimate' a division, in a word problem | A pile of 10 coins is 19 millimetres high. Estimate the thickness of one coin | D | G | | 15% | 15% | 0% |
| 11 | 'How many sevens in...?' | How many sevens in 35? | D | | | 44% | 44% | 0% |
| 5 | Multiplication by 5 in a word problem | I have 3 dominoes. Each dominoe has 5 dots. How many dots altogether on the three dominoes? | M | E | | 88% | 89% | 0% |
| 1 | Addition of money in word problem | Mark has a 20p coin. Vijay gives him 6p. How much has he now? | A | £ | | 92% | 93% | -1% |

# National Numeracy Project - June 1998
## Year : 4 Cohort : 1

| Project Level | | |
|---|---|---|
| | No. of Round 1 Pupils | 6628 |
| | No. of Round 2 Pupils | 7007 |
| | No. of Round 3 Pupils | 7588 |

**Chart 1 : Overall Test Score distribution**




*The above chart shows the percentage of pupils in the project in the different age-standardised score bands for the third round of testing and compared with the National standardised score distribution. Similar distributions for the written and mental tests are shown below.*

**Chart 2: Written Test Score distribution**

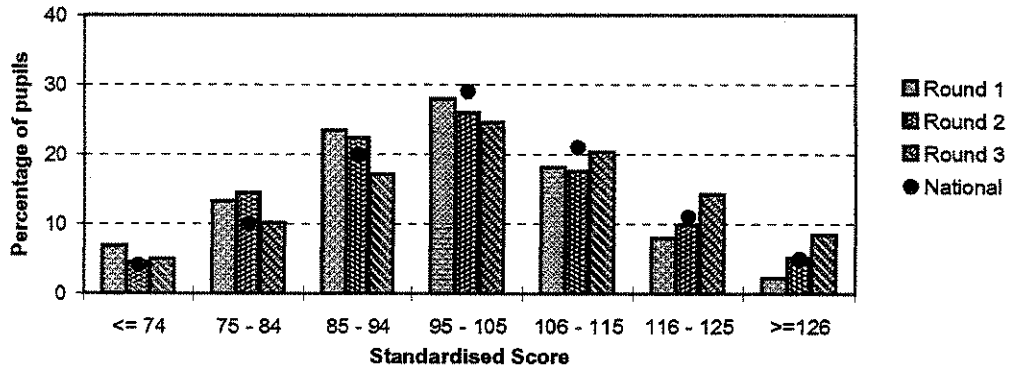
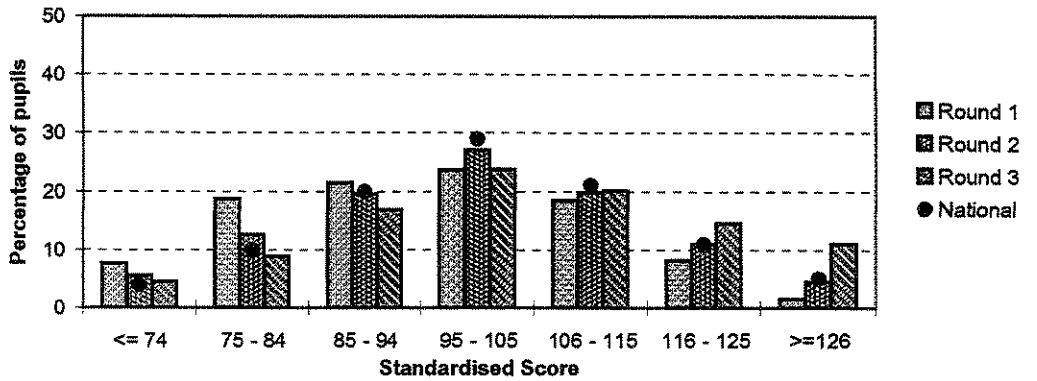



**Chart 3 : Mental Test Score distribution**

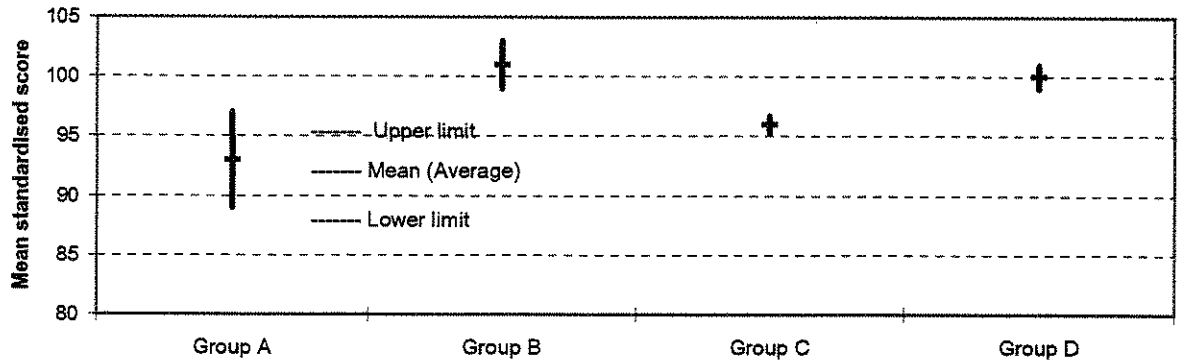


*(continued)* **National Numeracy Project - June 1998**

**Year : 4 Cohort : 1**

| **Project Level** | **No. of Round 1 Pupils** | **6628** |
|---|---|---|
| | **No. of Round 2 Pupils** | **7007** |
| | **No. of Round 3 Pupils** | **7588** |

**Example Chart : Mean scores**




*The above example shows, for each of four groups, the mean (average) standardised score and an estimate of the "95% confidence band" for each of these mean scores. Such a band means that we can be 95% certain that the mean score lies between the upper and lower limits of the vertical line, as annotated for Group A. If the top of a vertical line is lower than the bottom of another vertical line, then it is likely that there is a real difference between the two groups. If on the other hand the vertical lines overlap, then it is likely that any difference between the two scores is not significant. In this example, the difference between Groups A and B is likely to be real but the difference between Groups B and D is not significant.*

**Chart 4 : Mean scores for third round of testing**

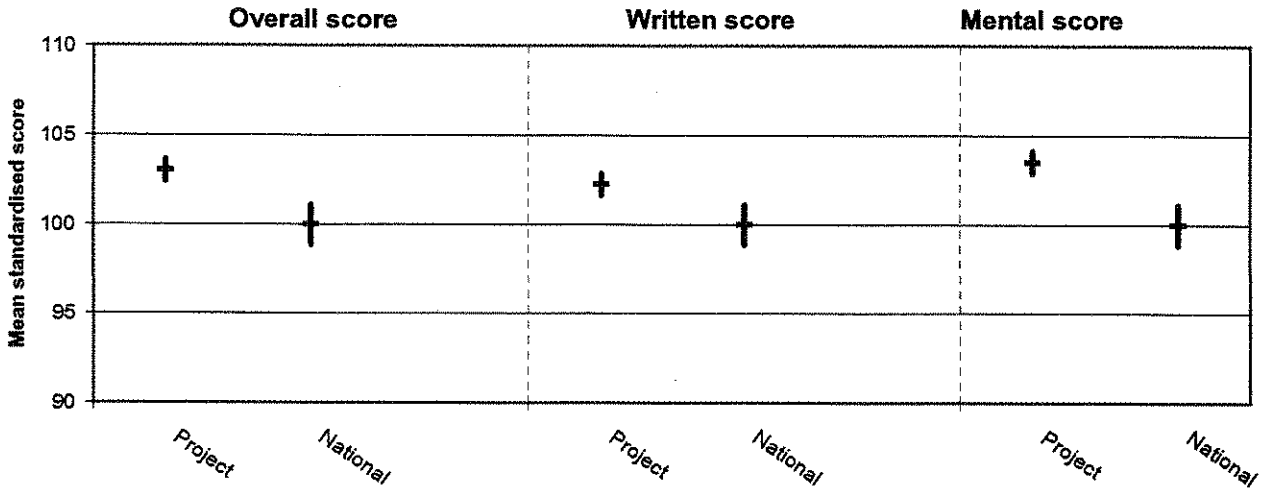



*Chart 4 shows the mean (average) score for the Project and compares it with the National Standardisation sample.*

*(continued)*

## National Numeracy Project - June 1998
## Year : 4 Cohort : 1

| Project Level | | |
|---|---|---|
| | No. of Round 1 Pupils | 6628 |
| | No. of Round 2 Pupils | 7007 |
| | No. of Round 3 Pupils | 7588 |

**Chart 5 : Mean project scores for third round of testing**

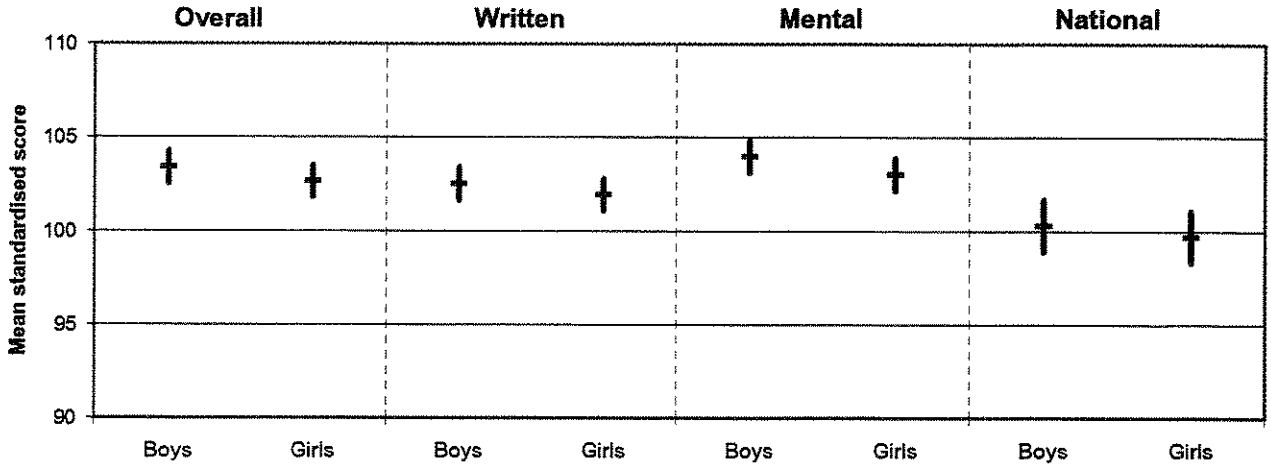



*Chart 5 shows the mean (average) score in the project separately for boys and girls and compares it with the National Standardisation sample.*

**Chart 6 : Mean Standardised scores by term of Birth**

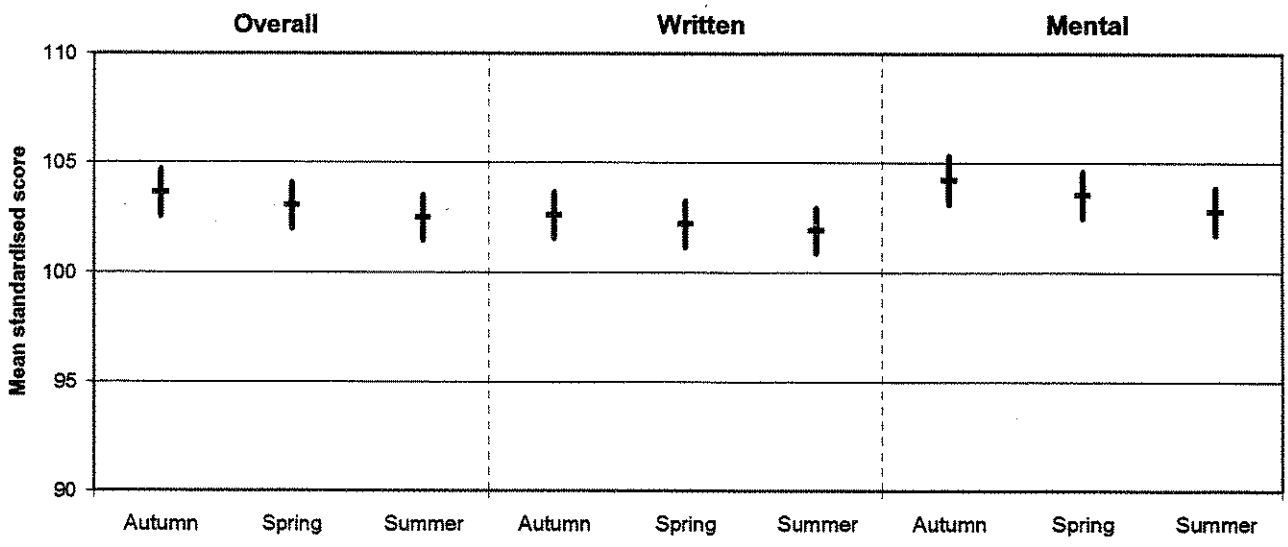



*Chart 6 shows the comparison of the mean (average) score of pupils born in the Autumn, Spring and Summer.*

*(continued)* **National Numeracy Project - June 1998**

**Year : 4 Cohort : 2**

| **Project Level** | **No. of Round 1 Pupils** | **6628** |
|---|---|---|
| | **No. of Round 2 Pupils** | **7007** |
| | **No. of Round 3 Pupils** | **7588** |

**Chart 7 : Mean Progress scores from Round 2 to Round 3**

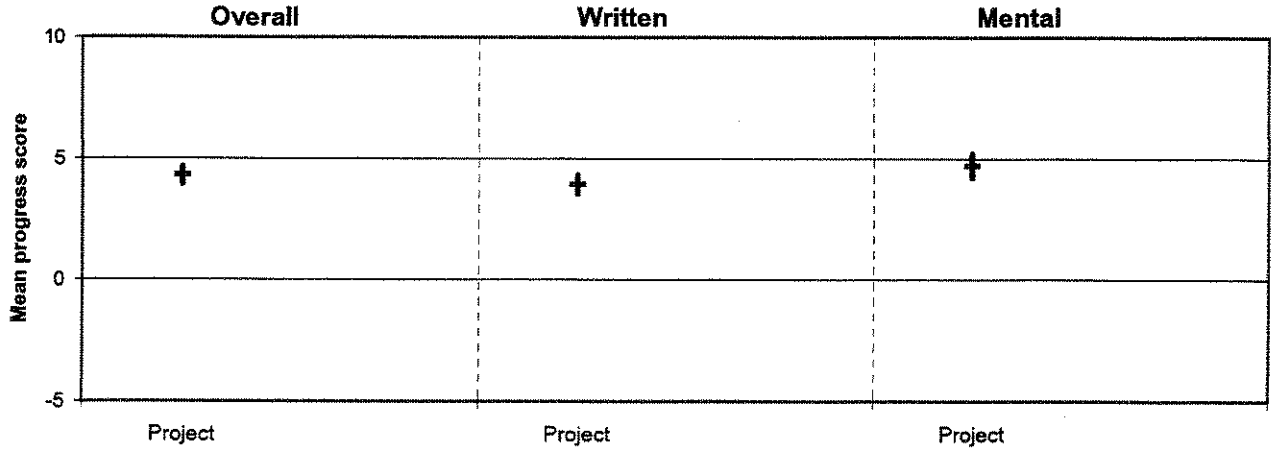
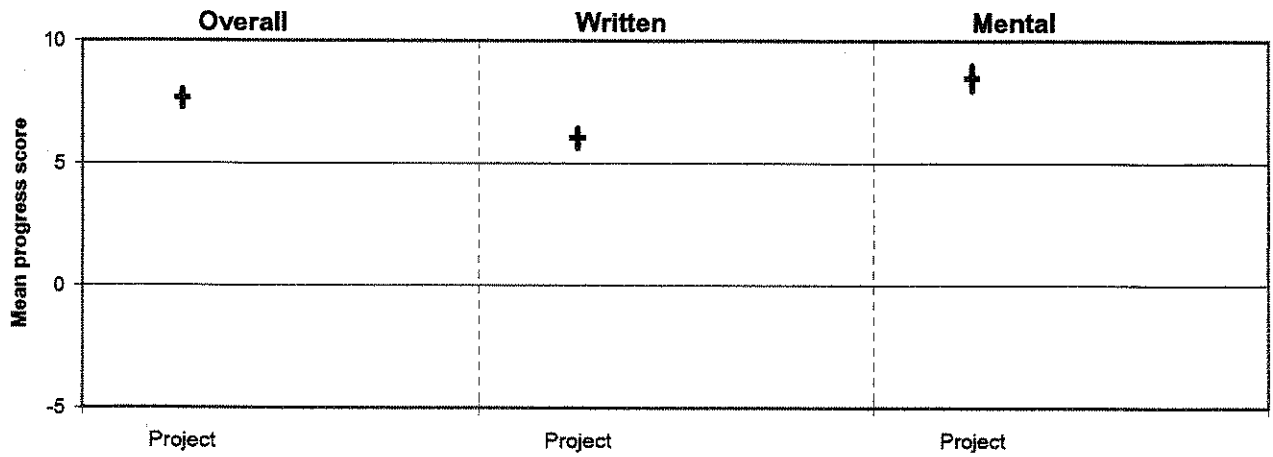



*Chart 7 shows the average progress made by the pupils between the second and third rounds of testing. Progress is measured by the difference in the standardised scores between both rounds of testing. The average progress score for your LEA is compared with the pupils in the Project.*
*Any line which lies completely above the horizontal zero line indicates significant progress from Round 2 to Round 3.*

*Chart 8 below is a similar plot for the progress made from the first to the third rounds of testing, that is the total amount of progress made during the project, in terms of increase in standardised score points over and above what might have been expected due to maturation.*

**Chart 8 : Mean Progress scores from Round 1 to Round 3**



# Cohort 1 – Year 6

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| Chart 8 | Mean progress scores (Round 1 to Round 3) |

# Project Report 1 - National Numeracy Project - June 1998
## Cohort 1 - Year 6 - Mean Standardised Test Scores
## Summary by background data- ALL LEAs

| | | Written Round 3 | | Mental Round 3 | | Overall Round 3 | | Written Progress | | Mental Progress | | Overall Progress | | No. of pupils absent | Total no. of pupils | Percent of pupils |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | | | |
| Total | | 98.3 | 15.1 | 101.8 | 16.3 | 99.9 | 15.5 | 3.5 | 8.9 | 6.3 | 11.6 | 5.1 | 8.4 | 466 | 7834 | 100% |
| Gender | Boys | 98.2 | 15.5 | 102.1 | 16.8 | 99.9 | 15.9 | 3.1 | 8.8 | 5.7 | 11.5 | 4.7 | 8.3 | 228 | 3987 | 51% |
| | Girls | 98.4 | 14.7 | 101.5 | 15.8 | 99.8 | 15.0 | 4.0 | 8.9 | 6.8 | 11.7 | 5.6 | 8.5 | 219 | 3828 | 49% |
| | Not known | | | | | | | | | | | | | 19 | 19 | 0% |
| Ethnic group | White | 99.0 | 15.1 | 102.3 | 16.2 | 100.5 | 15.4 | 3.1 | 8.6 | 5.6 | 11.2 | 4.6 | 8.1 | 339 | 5383 | 69% |
| | Black Caribbean | 97.5 | 14.7 | 101.3 | 16.3 | 99.2 | 14.9 | 5.4 | 10.0 | 6.2 | 12.7 | 6.5 | 9.3 | 17 | 328 | 4% |
| | Black African | 99.2 | 17.1 | 105.0 | 17.7 | 101.7 | 17.3 | 5.8 | 10.8 | 9.1 | 14.5 | 7.6 | 10.6 | 7 | 150 | 2% |
| | Black Other | 96.4 | 14.2 | 99.3 | 15.7 | 97.8 | 14.5 | 4.1 | 9.2 | 6.5 | 12.1 | 6.0 | 7.8 | 8 | 73 | 1% |
| | Indian | 100.6 | 15.2 | 103.4 | 16.4 | 102.0 | 15.6 | 4.5 | 7.9 | 6.6 | 10.8 | 6.0 | 7.4 | 6 | 329 | 4% |
| | Pakistani | 94.1 | 14.7 | 98.7 | 16.8 | 96.0 | 15.3 | 3.2 | 8.2 | 6.7 | 11.3 | 5.1 | 8.0 | 39 | 687 | 9% |
| | Bangladeshi | 95.7 | 14.6 | 100.6 | 16.0 | 97.7 | 15.0 | 4.9 | 9.8 | 10.4 | 12.7 | 7.7 | 9.5 | 12 | 513 | 7% |
| | Other | 97.7 | 14.6 | 101.1 | 16.2 | 99.2 | 15.1 | 5.2 | 10.4 | 8.1 | 13.0 | 6.9 | 10.1 | 18 | 344 | 4% |
| | Not known | 93.7 | 12.5 | 103.0 | 17.7 | 97.3 | 14.2 | | | | | | | 20 | 27 | 0% |
| Receives Free School Meals? | Yes | 93.8 | 14.4 | 97.6 | 15.5 | 95.3 | 14.7 | 3.4 | 9.3 | 6.2 | 11.9 | 5.1 | 8.9 | 191 | 2939 | 38% |
| | No | 101.4 | 15.0 | 104.8 | 16.3 | 103.1 | 15.4 | 3.8 | 8.7 | 6.4 | 11.5 | 5.3 | 8.2 | 209 | 4110 | 52% |
| | Not known | 98.6 | 14.0 | 102.0 | 15.5 | 100.1 | 14.4 | 2.5 | 8.4 | 5.9 | 11.2 | 4.3 | 8.0 | 66 | 785 | 10% |
| Special Educational Needs level | None | 102.1 | 13.9 | 105.8 | 15.2 | 103.9 | 14.2 | 3.6 | 8.9 | 6.8 | 11.8 | 5.4 | 8.5 | 297 | 5765 | 74% |
| | Stage 1 | 90.0 | 12.6 | 92.9 | 13.2 | 91.0 | 12.5 | 3.6 | 9.3 | 5.3 | 11.2 | 4.8 | 8.6 | 49 | 669 | 9% |
| | Stage 2 | 85.0 | 10.7 | 88.3 | 11.5 | 86.0 | 10.7 | 3.0 | 8.4 | 3.5 | 10.3 | 3.8 | 7.6 | 44 | 700 | 9% |
| | Stage 3 | 82.7 | 11.5 | 86.0 | 11.7 | 83.6 | 11.3 | 3.4 | 7.4 | 4.4 | 9.9 | 4.5 | 6.6 | 27 | 276 | 4% |
| | Stage 4 or above | 82.1 | 12.6 | 82.9 | 12.4 | 82.2 | 12.2 | 4.4 | 9.6 | 3.2 | 9.8 | 4.7 | 8.0 | 18 | 203 | 3% |
| | Not known | 97.7 | 13.9 | 102.9 | 15.5 | 99.9 | 14.4 | 2.7 | 10.1 | 7.5 | 13.8 | 5.1 | 10.1 | 31 | 221 | 3% |
| Stage of Learning English | New to English | 84.5 | 14.1 | 87.7 | 14.3 | 85.5 | 13.7 | 5.8 | 9.2 | 2.9 | 8.9 | 5.7 | 8.9 | 2 | 36 | 0% |
| | Becoming familiar with English | 87.7 | 13.3 | 92.0 | 14.9 | 89.1 | 13.8 | 5.3 | 9.0 | 9.1 | 12.2 | 7.3 | 9.0 | 13 | 297 | 4% |
| | Becoming confident with English | 94.4 | 13.9 | 98.4 | 15.5 | 96.1 | 14.3 | 3.8 | 9.3 | 8.0 | 12.2 | 6.1 | 9.1 | 33 | 772 | 10% |
| | Very fluent in most contexts | 102.0 | 14.3 | 106.4 | 15.7 | 104.1 | 14.6 | 4.6 | 8.8 | 8.0 | 12.1 | 6.6 | 8.4 | 33 | 753 | 10% |
| | English first language | 99.0 | 15.1 | 102.3 | 16.3 | 100.6 | 15.5 | 3.3 | 8.8 | 5.6 | 11.3 | 4.7 | 8.2 | 352 | 5655 | 72% |
| | Not known | 96.9 | 13.9 | 101.9 | 15.4 | 99.0 | 14.3 | 2.9 | 9.1 | 7.3 | 12.2 | 5.2 | 8.9 | 33 | 321 | 4% |

* Number of pupils absent from overall testing

## Project Report 1 - National Numeracy Project - June 1998
## Cohort 1 - Year 6 - Mean Standardised Test Scores
## Summary by background data- ALL LEAs

| | | Written Round 3 | | Mental Round 3 | | Overall Round 3 | | Written Progress | | Mental Progress | | Overall Progress | | No. of pupils absent | Total no. of pupils | Percent of pupils |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | | | |
| No. of terms Primary Education | 4 terms or less | 96.4 | 15.0 | 99.4 | 15.0 | 97.5 | 15.2 | 11.0 | 11.4 | 13.8 | 7.4 | 13.5 | 8.1 | 3 | 16 | 0% |
| | 6 | 93.3 | 15.1 | 96.9 | 15.6 | 94.7 | 14.9 | 7.8 | 6.9 | 6.3 | 13.2 | 8.3 | 8.0 | 3 | 33 | 0% |
| | 9 | 94.6 | 16.1 | 99.6 | 17.9 | 96.7 | 17.2 | 6.8 | 13.3 | 13.5 | 11.2 | 10.2 | 12.3 | 3 | 51 | 1% |
| | 12 | 94.2 | 14.9 | 98.0 | 14.9 | 95.7 | 14.2 | 5.2 | 11.8 | 8.9 | 14.1 | 7.0 | 11.6 | 2 | 72 | 1% |
| | 15 | 96.9 | 15.1 | 100.5 | 16.1 | 98.5 | 15.3 | 5.8 | 10.0 | 9.4 | 11.5 | 7.9 | 9.1 | 16 | 288 | 4% |
| | 18 | 99.1 | 15.1 | 102.5 | 16.3 | 100.6 | 15.5 | 3.3 | 8.8 | 5.9 | 11.5 | 4.9 | 8.3 | 303 | 5454 | 70% |
| | 21 | 101.0 | 16.1 | 103.8 | 17.5 | 102.4 | 16.5 | 4.9 | 7.8 | 6.4 | 11.2 | 6.1 | 7.6 | 20 | 353 | 5% |
| | 24 | 100.8 | 11.5 | 100.0 | 18.1 | 101.0 | 13.9 | 6.7 | 9.2 | 1.8 | 11.0 | 5.8 | 8.8 | | 11 | 0% |
| | Not known | 95.6 | 14.6 | 99.7 | 15.8 | 97.3 | 14.9 | 3.2 | 8.6 | 6.5 | 11.9 | 5.0 | 8.4 | 116 | 1556 | 20% |
| KS1 Teacher Assessment level- Number | 1 | 89.9 | 12.1 | 93.4 | 13.5 | 91.2 | 12.2 | 4.3 | 8.8 | 6.5 | 10.6 | 5.7 | 7.8 | 45 | 682 | 9% |
| | 2 | 101.6 | 14.6 | 104.7 | 15.3 | 103.1 | 14.8 | 3.7 | 8.8 | 6.2 | 11.2 | 5.2 | 8.4 | 70 | 1650 | 21% |
| | 3 | 105.8 | 14.5 | 109.3 | 15.4 | 107.7 | 14.7 | 2.8 | 8.3 | 4.8 | 11.1 | 4.1 | 8.1 | 21 | 537 | 7% |
| | Not Known | 97.5 | 15.1 | 101.2 | 16.5 | 99.1 | 15.5 | 3.4 | 8.9 | 6.5 | 12.0 | 5.2 | 8.6 | 330 | 4965 | 63% |
| KS1 Mathematics Task/Test level | 1 | 89.4 | 11.8 | 92.3 | 13.1 | 90.4 | 11.8 | 4.3 | 8.4 | 5.7 | 10.7 | 5.5 | 7.7 | 38 | 508 | 6% |
| | 2 | 102.6 | 13.3 | 105.4 | 14.3 | 104.0 | 13.4 | 3.8 | 9.0 | 6.6 | 11.4 | 5.4 | 8.5 | 56 | 1232 | 16% |
| | 2A | 105.0 | | 110.0 | | 108.0 | | -2.0 | | 13.0 | | 4.0 | | | 1 | 0% |
| | 2B | 111.7 | 8.4 | 116.7 | 5.1 | 114.0 | 6.9 | 7.0 | 10.4 | 9.7 | 8.1 | 8.3 | 10.1 | | 3 | 0% |
| | 2C | 98.4 | 11.5 | 103.8 | 11.7 | 100.5 | 11.3 | 1.5 | 8.0 | 8.3 | 11.1 | 4.3 | 8.4 | | 16 | 0% |
| | 3 | 115.2 | 12.8 | 118.5 | 13.6 | 117.3 | 13.0 | 4.3 | 8.4 | 6.8 | 9.7 | 5.8 | 7.9 | 10 | 270 | 3% |
| | Not Known | 97.3 | 15.0 | 101.1 | 16.3 | 99.0 | 15.4 | 3.3 | 8.9 | 6.2 | 11.9 | 5.0 | 8.5 | 362 | 5804 | 74% |

* Number of pupils absent from overall testing

# Project Report 2 - National Numeracy Project - June 1998
# Cohort 1 - Round 3 - Mean Standardised Test Scores
# Summary by LEA

*Year Group: 6*

| | | Written | | Mental | | Overall | | No. of pupils absent | Total no. of pupils |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | | |
| Total | | 98.3 | 15.1 | 101.8 | 16.3 | 99.9 | 15.5 | 466 | 7834 |
| LEA | 1 | 97.5 | 15.5 | 99.9 | 16.5 | 98.6 | 15.7 | 25 | 471 |
| | 2 | 103.2 | 14.4 | 106.3 | 15.6 | 104.8 | 14.6 | 54 | 762 |
| | 4 | 99.7 | 15.2 | 105.0 | 15.8 | 102.0 | 15.5 | 47 | 680 |
| | 5 | 99.5 | 14.7 | 101.9 | 15.9 | 100.7 | 15.0 | 39 | 745 |
| | 6 | 98.8 | 15.7 | 102.7 | 17.2 | 100.6 | 16.1 | 37 | 536 |
| | 7 | 96.7 | 14.1 | 100.0 | 15.1 | 98.2 | 14.2 | 35 | 449 |
| | 8 | 99.4 | 15.2 | 101.1 | 16.3 | 100.2 | 15.6 | 41 | 549 |
| | 9 | 100.7 | 14.4 | 104.0 | 15.6 | 102.3 | 14.7 | 25 | 664 |
| | 10 | 95.7 | 14.8 | 100.2 | 16.4 | 97.6 | 15.3 | 15 | 639 |
| | 12 | 95.0 | 14.8 | 98.8 | 16.1 | 96.6 | 15.3 | 43 | 902 |
| | 14 | 94.6 | 14.8 | 99.3 | 16.7 | 96.5 | 15.5 | 78 | 772 |
| | 15 | 98.9 | 15.3 | 102.6 | 16.5 | 100.5 | 15.8 | 27 | 665 |

# Project Report 3 - National Numeracy Project - June 1998
# Cohort 1 - Round 3 - Mean Progress Standardised Test Scores
# Summary by LEA

*Year Group: 6*

| | | Written Progress Score: Round3 - Round2 | | Mental Progress Score: Round3 - Round2 | | Overall Progress Score: Round3 - Round2 | | Written Progress Score: Round3 - Round1 | | Mental Progress Score: Round3 - Round1 | | Overall Progress Score: Round3 - Round1 | | No. of pupils absent | Total no. of pupils |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | | |
| Total | | .7 | 9.0 | 2.9 | 11.7 | 1.6 | 8.5 | 3.5 | 8.9 | 6.3 | 11.6 | 5.1 | 8.4 | 1494 | 7834 |
| LEA | 1 | 1.8 | 9.6 | 3.1 | 12.8 | 2.4 | 9.1 | 4.5 | 9.9 | 7.4 | 13.6 | 6.1 | 9.7 | 101 | 471 |
| | 2 | -1.8 | 8.3 | 1.7 | 11.6 | -.6 | 8.0 | 3.1 | 8.0 | 5.3 | 11.6 | 4.5 | 7.6 | 133 | 762 |
| | 4 | 2.2 | 9.9 | 6.4 | 11.2 | 3.8 | 9.3 | 3.8 | 8.9 | 8.9 | 10.9 | 6.3 | 8.2 | 117 | 680 |
| | 5 | 2.4 | 8.9 | 3.1 | 11.5 | 2.8 | 8.3 | 4.1 | 8.8 | 5.8 | 11.2 | 5.3 | 8.1 | 132 | 745 |
| | 6 | 1.7 | 10.3 | 3.2 | 14.3 | 2.3 | 10.3 | 6.2 | 10.6 | 8.6 | 12.9 | 7.8 | 10.2 | 151 | 536 |
| | 7 | -1.2 | 8.4 | 1.5 | 10.3 | -.2 | 7.1 | 2.5 | 7.9 | 3.7 | 9.6 | 3.5 | 6.8 | 102 | 449 |
| | 8 | .3 | 7.3 | 1.5 | 10.2 | .9 | 6.8 | 2.7 | 7.1 | 3.0 | 9.9 | 3.4 | 6.7 | 96 | 549 |
| | 9 | -.3 | 9.1 | 1.1 | 11.3 | .2 | 8.5 | 2.6 | 9.1 | 5.2 | 11.5 | 4.2 | 8.6 | 101 | 664 |
| | 10 | 1.7 | 9.5 | 4.6 | 12.6 | 2.8 | 9.3 | 4.5 | 9.6 | 9.2 | 12.9 | 7.0 | 9.5 | 102 | 639 |
| | 12 | .3 | 8.9 | 2.1 | 10.7 | 1.0 | 8.0 | 3.4 | 8.8 | 5.1 | 10.9 | 4.7 | 8.2 | 172 | 902 |
| | 14 | 1.4 | 8.1 | 4.5 | 12.3 | 2.7 | 8.4 | 2.3 | 8.2 | 6.8 | 11.7 | 4.4 | 8.3 | 197 | 772 |
| | 15 | .2 | 8.3 | 2.3 | 10.4 | 1.0 | 7.8 | 3.3 | 9.0 | 6.2 | 11.0 | 5.0 | 8.2 | 90 | 665 |

# Project Report 4 - National Numeracy Project - June 1998
# Cohort 1 - Round 3 - Mean Progress Standardised Test Scores
# Summary by LEA

***Year Group: 6***

| | | Written Rounds (2 - 1) Mean | Mental Rounds (2 - 1) Mean | Overall Rounds (2 - 1) Mean | Written Rounds (3 - 2) Mean | Mental Rounds (3 - 2) Mean | Overall Rounds (3 - 2) Mean | Written Rounds (3 - 1) Mean | Mental Rounds (3 - 1) Mean | Overall Rounds (3 - 1) Mean | No. of pupils absent | Total no. of pupils |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total | | 2.9 | 3.4 | 3.6 | .7 | 2.9 | 1.6 | 3.5 | 6.3 | 5.1 | 1494 | 7834 |
| LEA | 1 | 2.9 | 4.9 | 4.1 | 1.8 | 3.1 | 2.4 | 4.5 | 7.4 | 6.1 | 101 | 471 |
| | 2 | 4.5 | 3.1 | 4.6 | -1.8 | 1.7 | -.6 | 3.1 | 5.3 | 4.5 | 133 | 762 |
| | 4 | 1.7 | 2.8 | 2.5 | 2.2 | 6.4 | 3.8 | 3.8 | 8.9 | 6.3 | 117 | 680 |
| | 5 | 1.7 | 2.6 | 2.5 | 2.4 | 3.1 | 2.8 | 4.1 | 5.8 | 5.3 | 132 | 745 |
| | 6 | 5.0 | 4.9 | 5.7 | 1.7 | 3.2 | 2.3 | 6.2 | 8.6 | 7.8 | 151 | 536 |
| | 7 | 3.7 | 2.6 | 3.9 | -1.2 | 1.5 | -.2 | 2.5 | 3.7 | 3.5 | 102 | 449 |
| | 8 | 2.5 | 1.7 | 2.7 | .3 | 1.5 | .9 | 2.7 | 3.0 | 3.4 | 96 | 549 |
| | 9 | 3.1 | 4.3 | 4.2 | -.3 | 1.1 | .2 | 2.6 | 5.2 | 4.2 | 101 | 664 |
| | 10 | 3.2 | 5.2 | 4.5 | 1.7 | 4.6 | 2.8 | 4.5 | 9.2 | 7.0 | 102 | 639 |
| | 12 | 3.2 | 3.3 | 3.9 | .3 | 2.1 | 1.0 | 3.4 | 5.1 | 4.7 | 172 | 902 |
| | 14 | .9 | 2.3 | 1.8 | 1.4 | 4.5 | 2.7 | 2.3 | 6.8 | 4.4 | 197 | 772 |
| | 15 | 3.0 | 3.8 | 3.9 | .2 | 2.3 | 1.0 | 3.3 | 6.2 | 5.0 | 90 | 665 |

# National Numeracy Project - June 1998
## Year : 6 Cohort: 1

### Item Facilities Report

| Item No. | Written Test | Mathematical content | | | | Project | National | Project - National Difference |
|---|---|---|---|---|---|---|---|---|
| 19 | Recognise a square number | Ring another square number | N | | | 49% | 42% | 7% |
| 38 | Approximate multiplication of three digit decimal numbers by rounding | Approximate 4.98 x 11.05 by rounding to whole numbers | G | | | 31% | 26% | 5% |
| 12 | Read a pictogram symbol representing 2 cars | Interpret total number represented | H | | | 70% | 66% | 4% |
| 34 | Percentage recognition | What percentage of rectangle is shaded? 40%, 25%, 57% | % | | | 34% | 30% | 4% |
| 44 | Multiply fractions | ¼ x ½ = ___ | F | | | 27% | 24% | 4% |
| 24 | Multiply a decimal by 10 | 7.5 x 10 = _ | M | F | X | 41% | 39% | 3% |
| 43 | Find a percentage of a three digit number | 25% of £185 | % | £ | | 12% | 9% | 3% |
| 7 | Approximate subtraction of three digit numbers | 903 - 298, 900-200, 1000-200, 900-98,1000-3000, 900-300 | | | | 72% | 69% | 2% |
| 13 | Add decimals | 3.6 + 2.4 = _ | F | | | 71% | 68% | 2% |
| 32 | Add decimals | 13.9 + 8.22 = ___ | F | | | 31% | 29% | 2% |
| 21 | Read weight from scale | Read 2.7kg from scale 0.5kg to 3.6kg marked every 0.1kg | R | | | 59% | 57% | 1% |
| 33 | Convert pints to litres | Ring best equivalent to 3 litres : 3 pints, 30 pints, 2 pints, 6 pints, 1.5 pints | G | | | 33% | 32% | 1% |
| 9 | 2 step word problem, involving x and + | 4 oranges @ 11p and 1 banana @ 23p. How much? | M | A | £ | 83% | 82% | 1% |
| 26 | Read a scale (negative numbers and fractions | Read - 2.5 from scale -4 to 2.5 marked every 0.5 | D | | | 40% | 39% | 1% |
| 39 | Subtract length (in m and cm) in a word problem | Cut 85cm from 2.5m length. How much is left? | S | L | | 25% | 25% | 0% |
| 45 | Average speed, in word problem | Car travels 2640 miles in 24 hours. Average speed? | D | T | | 21% | 21% | 0% |
| 42 | Subtract decimals | 14.6 - 3.75 = ___ | F | | | 14% | 14% | 0% |
| 47 | Multiply decimals | 9.4 x 1.8 = ___ | F | | | 8% | 8% | 0% |
| 11 | Ring numbers which divide into 36 no remainder | Ring two factors of 36 from 3, 5, 7, 9, 11. | N | | | 67% | 67% | 0% |
| 30 | Find width of a rectangle, given perimeter and length | Perimeter is 48cm, length is 14cm and width is ? | I | | | 44% | 44% | 0% |
| 1 | Add weight, in a word problem | Kelly weighs 82kg, John weighs 7kg more. John's weight? | A | K | | 89% | 89% | 0% |
| 8a | Multiply single digit numbers, in word problem | 7 cards of buttons, each with 5 (7 x 5) | M | E | | 89% | 90% | -1% |
| 5 | Add three digit numbers, no crossing in a word problem | 136 infants, 245 juniors - how many children? | A | | | 92% | 93% | -1% |
| 15 | Read a scale | Mark 250 ml on a scale numbered in 0.1 of a litre. | R | | | 69% | 70% | -1% |
| 37 | Divide 3 digit number by a two digit number, no remainder | 544 ÷ 17 = ___ | D | | | 22% | 23% | -1% |
| 41 | Add fractions | $^5/_8 + {}^1/_4$ = ___ | F | | | 14% | 15% | -1% |
| 40 | Multiply a three digit number by a two digit number | 365 x 27 = ___ | M | | | 21% | 22% | -1% |
| 4 | | 49 + ___ = 55 | A | B | | 94% | 96% | -1% |
| 8b | Two step word problem (+ and -) | 2 cards of round buttons & 3 of square | M | E | | 82% | 84% | -1% |
| 27 | Order fractions and mixed numbers | Order ½, 1½, 2, ¼, 1¾. | F | | | 62% | 64% | -2% |
| 10 | Order decimal numbers | Arrange from smallest: 3.6, 3.2, 12.9, 0.5, and 2.3 | P | F | | 87% | 89% | -2% |
| 3 | Division of two digit number by 3, in word problem | 24 seeds in 3 rows. Seeds in each row? | D | E | | 78% | 80% | -2% |

# National Numeracy Project - June 1998
## Year : 6 Cohort: 1

### Item Facilities Report

| Item No. | Written Test | Mathematical content | | | | Project | National | Project - National Difference |
|---|---|---|---|---|---|---|---|---|
| 46 | Divide three digit number with one decimal place by two digit number | 128.8 ÷ 56 = ___ | D | | | 9% | 11% | -2% |
| 6 | Multiply a two digit number by 4, crossing tens | 72 x 4 = ____ | M | | | 67% | 70% | -2% |
| 2 | Estimate to the nearest £5 | Ring amount nearest to £5 : £4.50 £5.45 £4.85 £5.10 £4.00 | G | | | 69% | 72% | -2% |
| 36a | Find perimeter | | A | I | | 20% | 23% | -3% |
| 16 | Add money | £31.73 + £57.84 + ___ | A | £ | | 72% | 75% | -3% |
| 18 | Subtract two digit number from four digit number in a word problem | Write the number ten less than 7004 | S | | | 39% | 42% | -3% |
| 31 | Multiply two digit number by 9 with carrying | 48 x 9 = ___ | M | X | | 43% | 47% | -4% |
| 35 | Addition of three digit numbers with carrying | 256 + 579 = ___ | A | X | | 73% | 76% | -4% |
| 36b | Find area | | M | I | | 13% | 17% | -5% |
| 29 | Working out for question 29 | | | | | 36% | 41% | -5% |
| 14 | Find fraction of an amount of money | | F | | | 49% | 55% | -5% |
| 29 | 2 step word problem (÷ and x) | 3 black bricks and 2 white bricks in | D | M | | 34% | 39% | -5% |
| 17 | Subtraction of three digit number crossing tens | 475 - 396 | S | X | | 55% | 60% | -6% |
| 23 | Convert centimetres to metres | What is 580cm in metres? | D | L | | 44% | 50% | -6% |
| 20 | Subtract money | £72.47 - £31.60 = ___ | S | £ | | 49% | 55% | -6% |
| 25 | Divide two digit number by 8 with remainder | 99 ÷ 8 = ___ | D | | | 34% | 41% | -7% |
| 22 | Average speed in a word problem | Car travels 120 miles in three hours. Average speed ? | D | T | | 42% | 49% | -7% |
| 28 | Divide a four digit number by 9, no remainder | 9729 ÷ 9 = _ | D | X | | 32% | 42% | -10% |

# National Numeracy Project - June 1998
## Year : 6 Cohort: 1

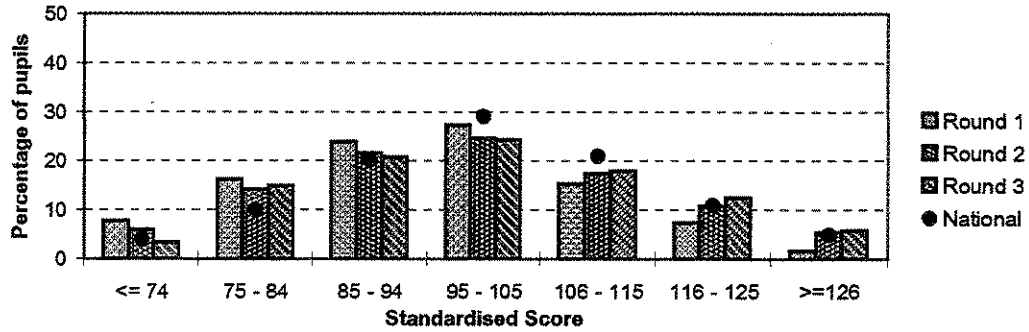
### Item Facilities Report

| Item No. | Mental Test | Mathematical content | | | | Project | National | Project - National Difference |
|---|---|---|---|---|---|---|---|---|
| 17 | 'Square root' | Square root of 81 | N | | | 56% | 42% | 15% |
| 26 | Subtract 2 single digit numbers to give a negative number | 6 subtract 8 | S | | | 53% | 41% | 13% |
| 15 | Writing a fraction as a decimal | Three quarters as a decimal. | F | | | 34% | 25% | 9% |
| 21 | Multiplication of money in a word problem | Meal costs £2.75. Cost of four? | M | £ | | 27% | 19% | 9% |
| 16 | 'Multiply' a two digit number by 3, crossing tens | Multiply 48 by 3 | M | | | 32% | 24% | 8% |
| 6 | 'Product' of two single digit numbers | Product of 7 and 8 | M | | | 37% | 30% | 7% |
| 9 | 'Divide by forty' with a decimal answer | 100 divided by 40 | D | | | 19% | 13% | 6% |
| 29 | Squared | What is 13 squared? | N | | | 13% | 8% | 6% |
| 28 | 'Write in figures' seven digit number | Write in figures 1,078,046 | P | | | 18% | 12% | 6% |
| 27 | Multiplication of 2 two digit numbers | 18 multiplied by 25 | M | | | 15% | 10% | 6% |
| 23 | 'Round' 2 decimal places to one | Round 85.27 to 1 decimal place | ?G | | | 16% | 10% | 6% |
| 19 | 'Difference between' 2 two digit numbers | Difference between 96 and 72 | S | | | 48% | 44% | 4% |
| 8 | 'Multiplied by' 6 | 15 multiplied by 6 | M | | | 52% | 48% | 4% |
| 25 | Division of weight in a word problem | Total weight of parcels is 350kg. Each weighs 25kg. How many parcels? | D | K | | 38% | 34% | 4% |
| 3 | Addition of money in a word problem | CD costs £7.99, tape costs £4.99 Total cost? | A | £ | | 59% | 56% | 3% |
| 22 | 'Total' of 2 two digit numbers | Total of 33 and 77 | A | | | 58% | 55% | 3% |
| 10 | Sum of two digit and single digit number, crossing tens | Sum of 49 and 7 | A | | | 76% | 73% | 3% |
| 24 | 'Three tenths of' | What is three tenths of eighty? | F | | | 23% | 20% | 3% |
| 14 | 'Share among' 6 | Share 84 among 6 | D | | | 29% | 27% | 2% |
| 13 | I add .... to a number and get .... What is the number? | Add 19 + 84. What is the number | S | | | 40% | 37% | 2% |
| 11 | From a number take away... and get... what is the number | A number subtracted fom 43 leaves 24. What is the number? | S | | | 51% | 50% | 1% |
| 5 | 'Subtract' using four digit number and three digit number | Subtract 100 from 1000 | S | | | 77% | 76% | 1% |
| 4 | 'Remainder' when dividing by 6 | Remainder when 77 divided by 6 | D | | | 38% | 37% | 1% |
| 12 | 'Multiplied by' 6 | 15 multiplied by 6 | M | | | 60% | 59% | 1% |
| 30 | 33 $^1/_3$% of | 33 $^1/_3$% of 540 | % | | | 2% | 2% | 1% |
| 18 | I subtract .....from a number,and get.... what is the number ? | Subtract 8 and get 27. What's the number ? | A | E | | 62% | 62% | 0% |
| 20 | 96 in eight equal teams. How many in each? | 96 children in 8 equal teams. How many in each? | D | | | 43% | 43% | 0% |
| 7 | 'Add together' four single digit numbers | Add 7+5+3+9 | A | | | 81% | 81% | 0% |
| 2 | 'Take away' single digit from tens number | Fourteen take away 7 | S | | | 94% | 94% | -1% |
| 1 | 'Add', using single digit numbers, crossing ten | What is 5 add 9? | A | | | 96% | 97% | -1% |

# National Numeracy Project - June 1998
## Year : 6 Cohort : 1

| Project Level | | |
|---|---|---|
| | No. of Round 1 Pupils | 6691 |
| | No. of Round 2 Pupils | 7030 |
| | No. of Round 3 Pupils | 7368 |

**Chart 1 : Overall Test Score distribution**




*The above chart shows the percentage of pupils in the project in the different age-standardised score bands for the third round of testing and compared with the National standardised score distribution. Similar distributions for the written and mental tests are shown below.*

**Chart 2: Written Test Score distribution**

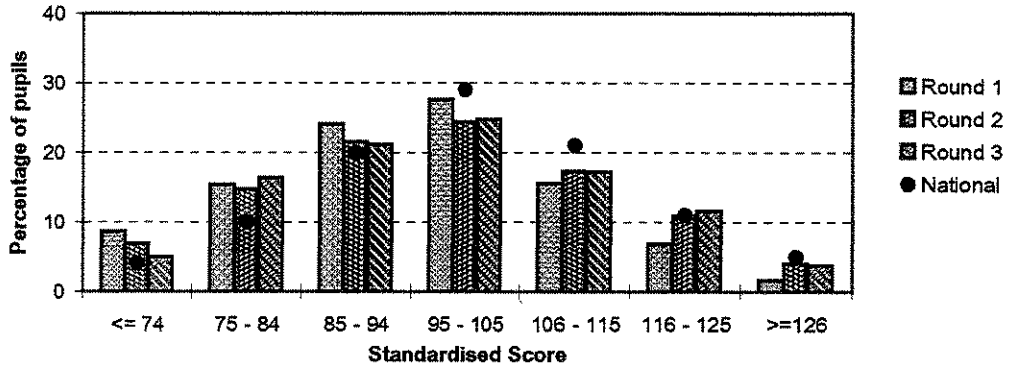
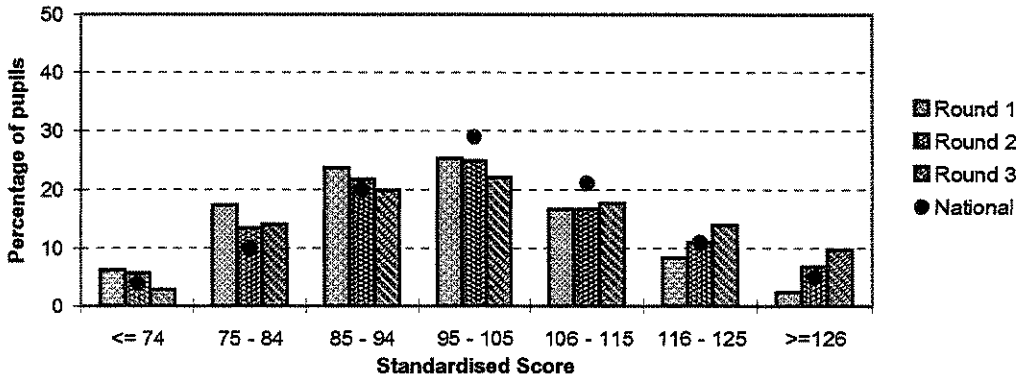


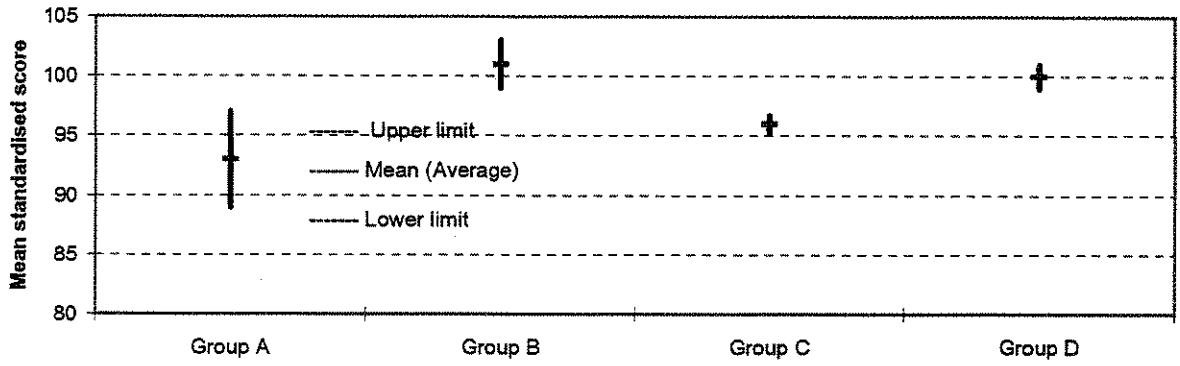

**Chart 3 : Mental Test Score distribution**



*(continued)* **National Numeracy Project - June 1998**
**Year : 6 Cohort : 1**

| | | |
|---|---|---|
| **Project Level** | **No. of Round 1 Pupils** | **6691** |
| | **No. of Round 2 Pupils** | **7030** |
| | **No. of Round 3 Pupils** | **7368** |

**Example Chart : Mean scores**




*The above example shows, for each of four groups, the mean (average) standardised score and an estimate of the "95% confidence band" for each of these mean scores. Such a band means that we can be 95% certain that the mean score lies between the upper and lower limits of the vertical line, as annotated for Group A. If the top of a vertical line is lower than the bottom of another vertical line, then it is likely that there is a real difference between the two groups. If on the other hand the vertical lines overlap, then it is likely that any difference between the two scores is not significant. In this example, the difference between Groups A and B is likely to be real but the difference between Groups B and D is not significant.*

**Chart 4 : Mean scores for third round of testing**

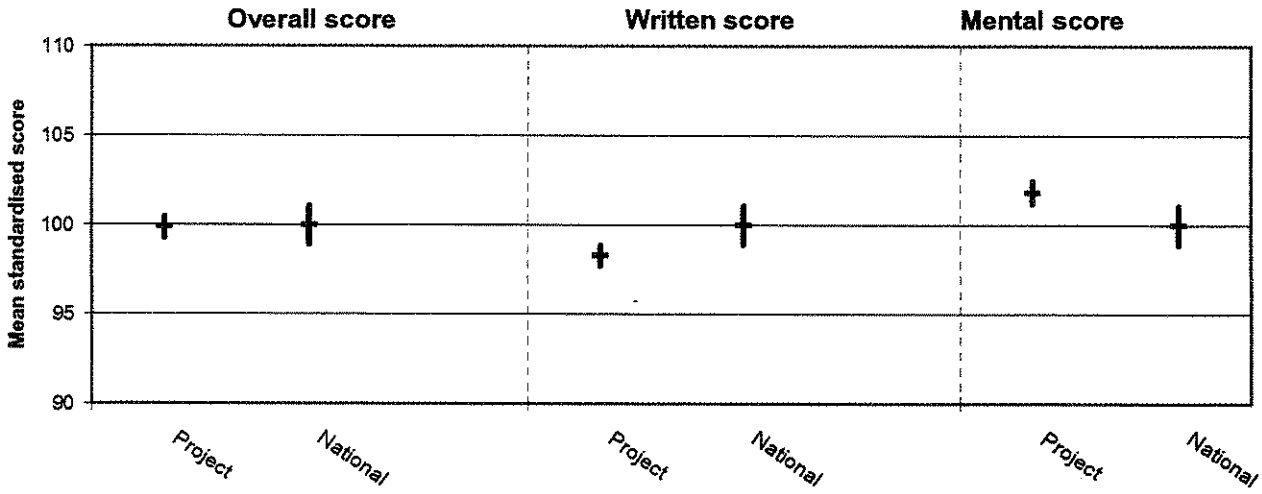



*Chart 4 shows the mean (average) score for the Project and compares it with the National Standardisation sample.*

*(continued)*

## National Numeracy Project - June 1998

**Year : 6 Cohort : 1**

| Project Level | | |
|---|---|---|
| | No. of Round 1 Pupils | 6691 |
| | No. of Round 2 Pupils | 7030 |
| | No. of Round 3 Pupils | 7368 |

**Chart 5 : Mean project scores for third round of testing**

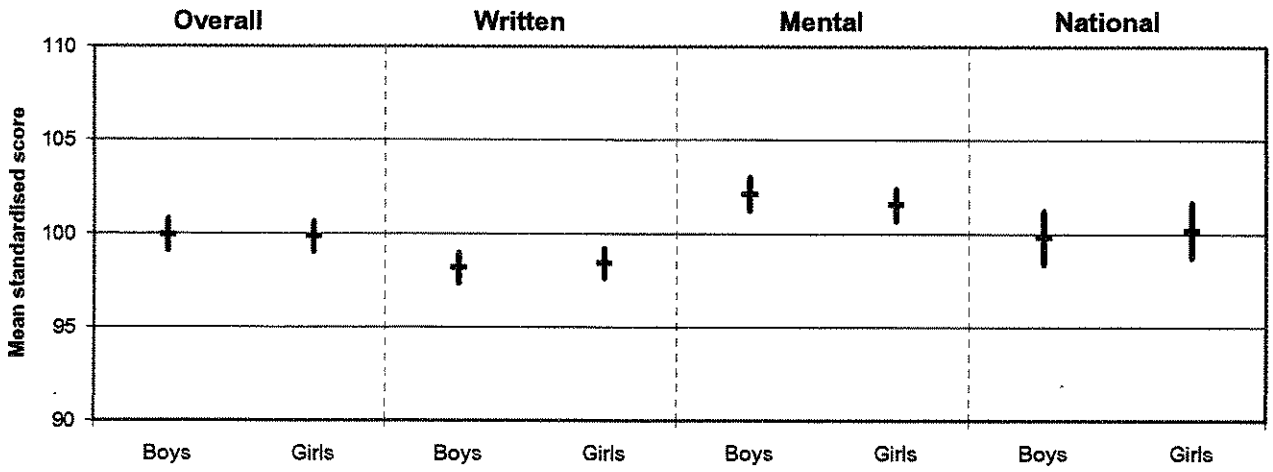



*Chart 5 shows the mean (average) score in the project separately for boys and girls and compares it with the National Standardisation sample.*

**Chart 6 : Mean Standardised scores by term of Birth**

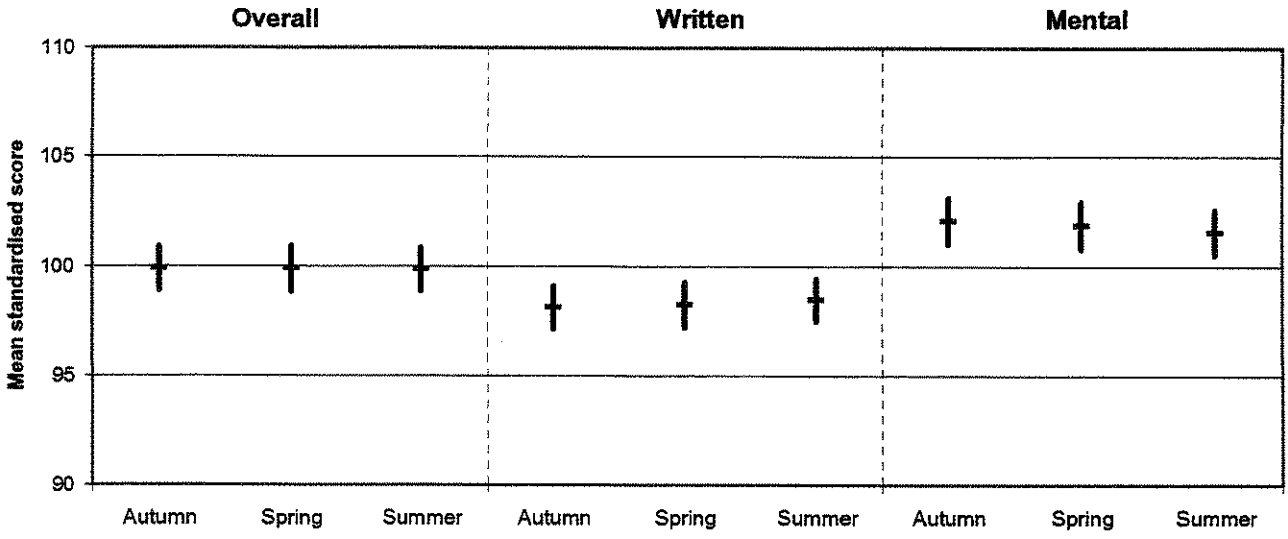



*Chart 6 shows the comparison of the mean (average) score of pupils born in the Autumn, Spring and Summer.*

*(continued)* **National Numeracy Project - June 1998**

**Year : 6 Cohort : 2**

| **Project Level** | **No. of Round 1 Pupils** | **6691** |
|---|---|---|
| | **No. of Round 2 Pupils** | **7030** |
| | **No. of Round 3 Pupils** | **7368** |

**Chart 7 : Mean Progress scores from Round 2 to Round 3**

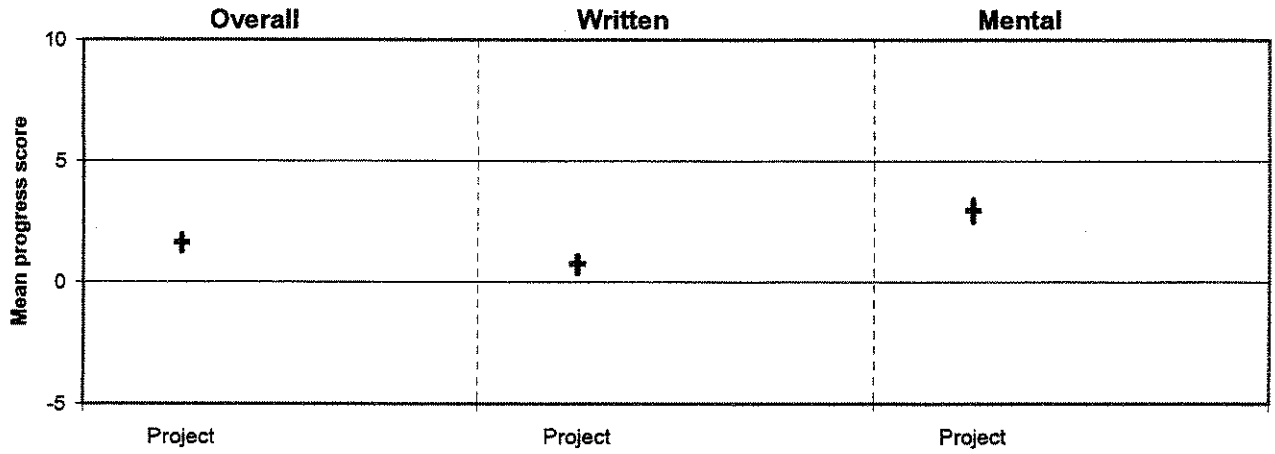
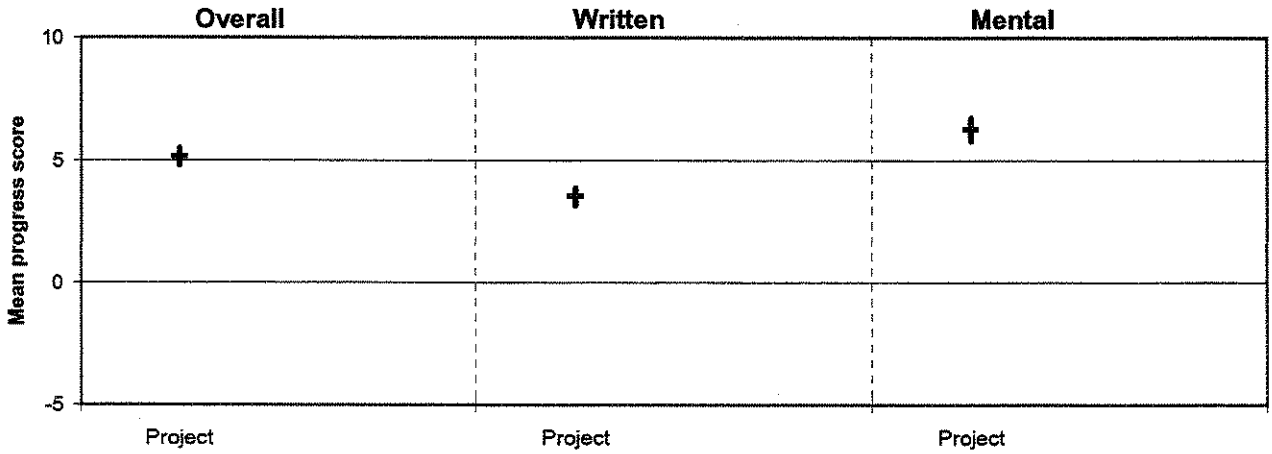



*Chart 7 shows the average progress made by the pupils between the second and third rounds of testing. Progress is measured by the difference in the standardised scores between both rounds of testing. The average progress score for your LEA is compared with the pupils in the Project.*
*Any line which lies completely above the horizontal zero line indicates significant progress from Round 2 to Round 3.*

*Chart 8 below is a similar plot for the progress made from the first to the third rounds of testing, that is the total amount of progress made during the project, in terms of increase in standardised score points over and above what might have been expected due to maturation.*

**Chart 8 : Mean Progress scores from Round 1 to Round 3**



# Cohort 2 – Year 2

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# Project Report 1 - National Numeracy Project - June 1998
## Cohort 2 - Year 2 - Mean Standardised Test Scores
## Summary by background data- ALL LEAs

| | | Written Round 2 | | Mental Round 2 | | Overall Round 2 | | Written Progress | | Mental Progress | | Overall Progress | | No. of pupils absent | Total no. of pupils | Percent of pupils |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | | | |
| Total | | 103.2 | 15.9 | 104.1 | 17.4 | 104.4 | 16.1 | 6.7 | 11.9 | 9.0 | 15.3 | 7.8 | 11.3 | 1814 | 10135 | 100% |
| Gender | Boys | 103.4 | 16.5 | 104.7 | 17.9 | 104.8 | 16.6 | 7.1 | 12.0 | 10.0 | 15.6 | 8.5 | 11.5 | 904 | 5175 | 51% |
| | Girls | 103.0 | 15.3 | 103.5 | 16.8 | 104.0 | 15.5 | 6.2 | 11.8 | 7.9 | 14.8 | 7.1 | 11.1 | 906 | 4956 | 49% |
| | Not known | 98.0 | 31.1 | 112.0 | 18.7 | 103.0 | 29.7 | | | | | | | 4 | 4 | 0% |
| Ethnic group | White | 104.6 | 15.8 | 105.9 | 17.2 | 106.0 | 16.0 | 6.7 | 11.6 | 9.3 | 15.0 | 7.9 | 11.1 | 1133 | 6849 | 68% |
| | Black Caribbean | 99.5 | 15.2 | 101.0 | 16.9 | 100.8 | 15.4 | 4.8 | 12.3 | 6.7 | 15.0 | 5.8 | 11.4 | 91 | 474 | 5% |
| | Black African | 101.0 | 15.4 | 101.6 | 17.5 | 102.0 | 15.7 | 4.5 | 12.1 | 6.1 | 16.1 | 5.3 | 12.1 | 79 | 397 | 4% |
| | Black Other | 104.1 | 16.8 | 102.5 | 18.7 | 104.6 | 16.7 | 8.8 | 15.2 | 8.0 | 16.5 | 9.2 | 13.4 | 22 | 120 | 1% |
| | Indian | 104.5 | 15.0 | 103.3 | 17.8 | 105.0 | 15.2 | 7.2 | 11.5 | 7.5 | 16.8 | 7.7 | 11.3 | 50 | 353 | 3% |
| | Pakistani | 96.9 | 15.4 | 98.0 | 16.7 | 98.0 | 15.3 | 7.2 | 11.6 | 10.4 | 15.4 | 8.6 | 11.0 | 159 | 734 | 7% |
| | Bangladeshi | 99.3 | 15.1 | 98.0 | 16.3 | 99.5 | 14.8 | 7.2 | 13.5 | 9.9 | 15.6 | 8.5 | 11.8 | 150 | 640 | 6% |
| | Other | 102.3 | 16.4 | 102.6 | 18.0 | 103.3 | 16.4 | 7.3 | 12.9 | 8.2 | 15.9 | 8.0 | 12.2 | 111 | 540 | 5% |
| | Not known | 96.4 | 17.7 | 98.7 | 18.6 | 97.8 | 17.7 | 11.3 | 12.6 | 7.2 | 22.3 | 10.3 | 14.5 | 19 | 28 | 0% |
| Receives Free School Meals? | Yes | 98.5 | 15.6 | 99.2 | 17.0 | 99.5 | 15.7 | 6.2 | 12.3 | 8.1 | 15.5 | 7.2 | 11.5 | 802 | 3606 | 36% |
| | No | 106.0 | 15.5 | 107.0 | 17.1 | 107.3 | 15.7 | 6.9 | 11.7 | 9.5 | 15.1 | 8.2 | 11.2 | 936 | 6262 | 62% |
| | Not known | 102.0 | 13.6 | 102.2 | 15.4 | 102.9 | 13.6 | 6.6 | 12.2 | 8.1 | 16.7 | 7.4 | 11.3 | 76 | 267 | 3% |
| Special Educational Needs level | None | 106.7 | 14.5 | 107.7 | 16.1 | 108.0 | 14.7 | 7.3 | 11.9 | 9.7 | 15.2 | 8.6 | 11.3 | 1289 | 7844 | 77% |
| | Stage 1 | 93.8 | 14.2 | 94.6 | 15.6 | 94.7 | 14.2 | 5.4 | 11.7 | 7.3 | 15.4 | 6.3 | 11.0 | 207 | 1142 | 11% |
| | Stage 2 | 89.2 | 13.4 | 89.5 | 14.7 | 89.9 | 13.0 | 3.3 | 11.9 | 5.8 | 15.1 | 4.2 | 11.1 | 203 | 799 | 8% |
| | Stage 3 | 84.9 | 15.4 | 85.9 | 15.8 | 86.0 | 14.6 | 2.8 | 10.6 | 5.4 | 15.4 | 3.7 | 10.4 | 54 | 187 | 2% |
| | Stage 4 or above | 81.8 | 14.7 | 81.2 | 15.6 | 82.4 | 14.5 | -.4 | 9.0 | .0 | 11.1 | -.1 | 8.0 | 44 | 115 | 1% |
| | Not known | 103.9 | 14.5 | 105.4 | 16.0 | 105.2 | 14.9 | 2.5 | 10.9 | 8.5 | 10.5 | 5.1 | 10.2 | 17 | 48 | 0% |
| Stage of Learning English | New to English | 94.4 | 16.0 | 91.8 | 16.0 | 94.2 | 14.9 | 7.9 | 14.4 | 8.4 | 16.0 | 8.2 | 12.0 | 87 | 309 | 3% |
| | Becoming familiar with English | 95.4 | 15.0 | 95.1 | 16.0 | 95.9 | 14.7 | 6.3 | 12.6 | 7.9 | 16.0 | 7.1 | 11.7 | 177 | 861 | 8% |
| | Becoming confident with English | 101.4 | 14.4 | 101.9 | 16.9 | 102.4 | 14.6 | 6.6 | 11.9 | 9.1 | 16.5 | 7.8 | 11.7 | 167 | 748 | 7% |
| | Very fluent in most contexts | 106.6 | 15.2 | 107.8 | 16.3 | 108.0 | 15.2 | 7.2 | 12.4 | 9.9 | 16.1 | 8.6 | 12.1 | 100 | 457 | 5% |
| | English first language | 104.4 | 15.8 | 105.6 | 17.2 | 105.8 | 16.0 | 6.6 | 11.7 | 9.1 | 15.0 | 7.9 | 11.2 | 1266 | 7727 | 76% |
| | Not known | 95.2 | 15.0 | 97.7 | 18.7 | 96.9 | 16.1 | 2.8 | 11.6 | 4.7 | 15.5 | 3.6 | 12.0 | 17 | 33 | 0% |

* Number of pupils absent from either rounds of testing

# Project Report 1 - National Numeracy Project - June 1998
## Cohort 2 - Year 2 - Mean Standardised Test Scores
## Summary by background data- ALL LEAs

| | | Written Round 2 | | Mental Round 2 | | Overall Round 2 | | Written Progress | | Mental Progress | | Overall Progress | | No. of pupils absent | Total no. of pupils | Percent of pupils |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | | | |
| Received Nursery Education? | Yes | 103.6 | 15.9 | 104.4 | 17.3 | 104.8 | 16.0 | 6.3 | 12.0 | 8.8 | 15.2 | 7.5 | 11.4 | 868 | 6383 | 63% |
| | No | 103.4 | 16.0 | 104.8 | 17.7 | 104.9 | 16.3 | 7.4 | 11.3 | 10.0 | 14.8 | 8.6 | 10.9 | 340 | 2067 | 20% |
| | Not known | 101.5 | 15.8 | 102.2 | 17.3 | 102.6 | 15.9 | 7.3 | 12.2 | 8.3 | 16.3 | 8.0 | 11.8 | 606 | 1685 | 17% |
| No. of terms Primary Education | 4 terms or less | 96.8 | 16.2 | 97.4 | 17.6 | 97.8 | 16.3 | 10.4 | 13.5 | 8.7 | 15.3 | 10.4 | 12.9 | 529 | 587 | 6% |
| | 5 | 102.2 | 16.4 | 101.2 | 18.7 | 102.7 | 16.6 | 10.1 | 12.3 | 8.1 | 16.3 | 9.7 | 11.7 | 59 | 262 | 3% |
| | 6 | 102.9 | 15.2 | 103.1 | 17.4 | 103.9 | 15.5 | 7.1 | 12.9 | 9.0 | 15.7 | 8.1 | 11.7 | 107 | 828 | 8% |
| | 7 | 103.4 | 15.6 | 103.8 | 17.5 | 104.5 | 15.9 | 6.3 | 12.2 | 9.2 | 15.7 | 7.7 | 11.8 | 204 | 1941 | 19% |
| | 8 | 104.1 | 15.8 | 105.4 | 17.1 | 105.4 | 16.0 | 6.6 | 11.6 | 9.0 | 15.1 | 7.8 | 11.1 | 654 | 5818 | 57% |
| | 9 | 104.1 | 17.5 | 104.9 | 18.6 | 105.3 | 17.6 | 5.4 | 12.1 | 10.1 | 14.8 | 7.3 | 11.5 | 31 | 187 | 2% |
| | 10 | 104.0 | 15.3 | 98.4 | 15.8 | 102.8 | 14.9 | 6.6 | 12.8 | 9.2 | 17.4 | 8.0 | 12.9 | 5 | 26 | 0% |
| | 11 | 103.8 | 15.0 | 100.5 | 16.8 | 103.3 | 15.1 | 4.6 | 10.8 | 6.0 | 11.5 | 5.6 | 9.4 | 8 | 50 | 0% |
| | 12 | 99.5 | 9.4 | 90.9 | 11.1 | 96.7 | 9.1 | 5.2 | 8.3 | 3.8 | 9.7 | 5.3 | 8.4 | 14 | 18 | 0% |
| | Not known | 100.0 | 16.2 | 101.3 | 17.6 | 101.3 | 16.3 | 6.9 | 11.9 | 8.3 | 15.5 | 7.7 | 11.2 | 203 | 418 | 4% |
| KS1 Teacher Assessment level- Number | | 100.7 | 16.6 | 100.4 | 18.1 | 101.5 | 16.4 | 5.7 | 12.9 | 6.3 | 17.0 | 6.2 | 12.2 | 335 | 1221 | 12% |
| | 1 | 85.4 | 9.7 | 86.6 | 10.9 | 86.2 | 8.8 | .7 | 10.3 | 4.0 | 13.6 | 1.7 | 9.2 | 357 | 1507 | 15% |
| | 2 | 104.5 | 11.9 | 105.4 | 14.3 | 105.7 | 12.2 | 7.7 | 11.7 | 9.7 | 15.1 | 8.9 | 11.0 | 913 | 5728 | 57% |
| | 3 | 121.8 | 8.6 | 123.2 | 9.3 | 123.7 | 8.0 | 9.6 | 11.5 | 13.3 | 14.4 | 11.3 | 11.1 | 135 | 1465 | 14% |
| | W | 75.8 | 7.9 | 77.6 | 9.9 | 77.2 | 7.2 | -2.6 | 9.1 | 1.6 | 14.0 | -1.2 | 8.4 | 74 | 214 | 2% |
| KS1 Mathematics Task/Test level | | 98.5 | 17.6 | 98.4 | 19.5 | 99.3 | 18.0 | 5.5 | 12.1 | 7.4 | 17.5 | 6.5 | 12.1 | 252 | 592 | 6% |
| | 1 | 85.4 | 9.9 | 86.6 | 11.2 | 86.2 | 9.1 | .2 | 10.4 | 3.5 | 14.1 | 1.2 | 9.4 | 331 | 1443 | 14% |
| | 2 | 101.5 | 14.2 | 100.5 | 15.1 | 102.0 | 13.5 | -7.0 | 13.6 | -7.7 | 17.6 | -7.3 | 13.3 | 10 | 61 | 1% |
| | 2A | 112.3 | 9.6 | 113.9 | 12.2 | 114.1 | 9.7 | 10.0 | 11.7 | 13.0 | 15.0 | 11.7 | 10.9 | 207 | 1558 | 15% |
| | 2B | 105.0 | 10.1 | 106.1 | 12.7 | 106.3 | 10.3 | 8.2 | 11.5 | 10.0 | 14.9 | 9.3 | 10.9 | 356 | 2199 | 22% |
| | 2C | 96.2 | 10.3 | 96.7 | 12.6 | 96.9 | 10.1 | 5.2 | 11.0 | 6.9 | 14.5 | 6.1 | 10.2 | 408 | 2314 | 23% |
| | 3 | 121.6 | 8.8 | 122.5 | 10.4 | 123.3 | 8.3 | 10.0 | 11.8 | 12.8 | 14.7 | 11.4 | 11.4 | 178 | 1721 | 17% |
| | W | 76.9 | 8.8 | 77.7 | 9.0 | 77.9 | 7.6 | -1.9 | 9.9 | .5 | 14.0 | -1.2 | 8.5 | 72 | 247 | 2% |

* Number of pupils absent from either rounds of testing

# Project Report 2 - National Numeracy Project - June 1998
## Cohort 2 - Round 2 - Mean Standardised Test Scores
## Summary by LEA

*Year Group: 2*

| | | Written | | Mental | | Overall | | No. of pupils absent | Total no. of pupils |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | | |
| Total | | 103.2 | 15.9 | 104.1 | 17.4 | 104.4 | 16.1 | 523 | 10135 |
| LEA | 1 | 104.1 | 16.1 | 104.8 | 18.1 | 105.2 | 16.4 | 24 | 750 |
| | 2 | 109.2 | 14.6 | 111.3 | 15.5 | 111.0 | 14.6 | 22 | 596 |
| | 3 | 108.1 | 14.8 | 110.1 | 15.1 | 109.8 | 14.6 | 16 | 329 |
| | 4 | 103.9 | 15.5 | 105.8 | 16.9 | 105.5 | 15.9 | 57 | 837 |
| | 5 | 103.0 | 15.4 | 103.3 | 16.7 | 103.9 | 15.4 | 62 | 1064 |
| | 6 | 102.7 | 16.7 | 103.8 | 18.1 | 104.1 | 16.5 | 46 | 811 |
| | 7 | 98.8 | 15.0 | 100.9 | 18.2 | 100.6 | 15.7 | 29 | 317 |
| | 8 | 103.2 | 16.1 | 104.8 | 17.6 | 104.8 | 16.4 | 30 | 597 |
| | 9 | 103.0 | 15.8 | 104.8 | 16.9 | 104.5 | 16.0 | 48 | 1061 |
| | 10 | 102.9 | 15.6 | 101.2 | 16.7 | 103.0 | 15.6 | 30 | 672 |
| | 12 | 100.5 | 16.3 | 101.2 | 17.8 | 101.6 | 16.4 | 70 | 1180 |
| | 13 | 101.6 | 15.6 | 101.5 | 17.0 | 102.4 | 15.6 | 40 | 809 |
| | 14 | 103.2 | 16.4 | 104.1 | 18.0 | 104.5 | 16.7 | 24 | 670 |
| | 15 | 104.1 | 15.3 | 104.9 | 17.2 | 105.2 | 15.7 | 25 | 442 |

# Project Report 3 - National Numeracy Project - June 1998
# Cohort 2 - Round 2 - Mean Progress Standardised Test Scores
# Summary by LEA

*Year Group: 2*

| | | Written Progress Score | | Mental Progress Score | | Overall Progress Score | | No. of pupils absent | Total no. of pupils |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | | |
| Total | | 6.7 | 11.9 | 9.0 | 15.3 | 7.8 | 11.3 | 1814 | 10135 |
| LEA | 1 | 5.4 | 12.4 | 7.5 | 14.9 | 6.5 | 11.6 | 115 | 750 |
| | 2 | 6.5 | 10.6 | 8.4 | 14.8 | 7.4 | 10.5 | 91 | 596 |
| | 3 | 6.1 | 10.8 | 10.3 | 14.4 | 7.9 | 10.0 | 62 | 329 |
| | 4 | 6.9 | 11.8 | 10.7 | 15.2 | 8.6 | 11.7 | 135 | 837 |
| | 5 | 7.5 | 11.0 | 8.7 | 15.1 | 8.1 | 10.4 | 194 | 1064 |
| | 6 | 5.1 | 13.1 | 6.9 | 17.2 | 6.0 | 12.5 | 165 | 811 |
| | 7 | 9.1 | 11.6 | 10.2 | 14.7 | 10.1 | 10.8 | 81 | 317 |
| | 8 | 8.4 | 10.9 | 11.4 | 13.4 | 10.1 | 10.5 | 99 | 597 |
| | 9 | 5.3 | 11.2 | 8.2 | 15.7 | 6.7 | 11.3 | 180 | 1061 |
| | 10 | 7.4 | 13.7 | 10.7 | 15.3 | 8.9 | 12.1 | 122 | 672 |
| | 12 | 7.4 | 12.2 | 8.9 | 15.6 | 8.3 | 11.5 | 238 | 1180 |
| | 13 | 5.6 | 12.9 | 6.0 | 15.4 | 6.1 | 12.0 | 149 | 809 |
| | 14 | 7.5 | 11.5 | 11.4 | 14.5 | 9.3 | 10.7 | 110 | 670 |
| | 15 | 6.5 | 11.1 | 9.9 | 14.0 | 8.2 | 10.4 | 73 | 442 |

# National Numeracy Project - June 1998
## Year : 2 Cohort: 2

### Item Facilities Report

| Item No. | Written Test | Mathematical content | | | | Project | National | Project - National Difference |
|---|---|---|---|---|---|---|---|---|
| 17 | Doubling | Double 8 | M | | | 63% | 40% | 23% |
| 36 | Round to the nearest hundred | 357 to the nearest hundred | G | | | 26% | 12% | 14% |
| 14 | 'Odd number' recognition | Ring odd numbers in range 18 to 25 | N | | | 68% | 54% | 13% |
| 34 | Place value | Ring hundreds in 1295 | P | | | 27% | 14% | 13% |
| 22 | Read a scale (whole numbers) | Scale numbered in 5s from 0 to 25, read 17 | R | | | 43% | 31% | 12% |
| 19 | | 30 - _ = 22 | S | B | | 48% | 38% | 10% |
| 23 | | 43 - _ = 37 | S | B | | 41% | 31% | 10% |
| 13 | Subtract single digit from two digit number without crossing tens | 87 - 4 = _ | S | X | | 59% | 49% | 9% |
| 11 | | _ + _ = 28 | A | O | | 72% | 63% | 9% |
| 24 | Number sequence - add 7 | Next number in sequence 14, 21, 28, 35, _ | N | | | 31% | 23% | 9% |
| 28 | | 20 x _ = 80 | M | B | | 17% | 8% | 9% |
| 9 | Add 10 to a two digit number | 83 + 10 = _ | A | X | | 71% | 63% | 9% |
| 29 | | 46 ÷ _ = 23 | D | B | | 14% | 6% | 8% |
| 20 | Add a single to a two digit number, crossing tens | 54 + 9 = _ | A | X | | 63% | 56% | 8% |
| 21 | Fraction recognition | Recognise a shaded quarter of a circle | F | | | 33% | 26% | 7% |
| 30a | Total weight, data handling, read table | Total weight of three children (in kg) | A | H | | 17% | 10% | 6% |
| 27 | | _ - 9 = 7 | S | B | | 21% | 15% | 6% |
| 7 | Subtract single digit numbers | 8 - 3 = _ | S | X | | 84% | 78% | 6% |
| 25 | Multiply two digit number by 3, no carrying | 32 x 3 = _ | M | X | | 16% | 10% | 6% |
| 10 | Add a single digit to a teens number, not crossing 20 | 12 + 7 = _ | A | X | | 79% | 73% | 6% |
| 30b | Subtract heights, data handling, read table | How much taller? (Heights in cm) | S | H | | 17% | 12% | 5% |
| 26 | Multiply by 6 (square numbers - table fact) | 6 x 6 = _ | M | X | | 25% | 20% | 5% |
| 15 | Addition of weight | 50g and 5g. How many grams altogether? | A | K | | 55% | 50% | 5% |
| 18 | Addition of time (hours) | Read 10:30 on a digital clock. Time is one hour later? | A | T | | 39% | 35% | 5% |
| 16 | Add 3 single digit numbers | 5 + 2 + 9 = _ | A | X | | 76% | 71% | 5% |
| 12 | Add numbers less than 20, in a word problem | 7 people on a bus. 8 more get on. How many now? | A | E | | 69% | 65% | 4% |
| 31 | Subtract 3 digit number from 200 | 200 - 184 = _ | S | X | | 9% | 6% | 4% |
| 37 | Divide three digit by two digit number, in a word problem | How many 25s in 450? | D | E | | 4% | 2% | 3% |
| 33 | Convert centimetres to millimetres | Millimetres in 11 centimetres | M | L | | 5% | 3% | 2% |
| 2 | Number line with numbers less than 10 (decreasing) | Fill in missing numbers on number line from 9 to 4 | N | | | 91% | 89% | 2% |
| 4 | Add single digit numbers | 3 + 6 = _ | A | X | | 92% | 90% | 2% |
| 32 | Divide 2 digit number by 3, with remainder | 67 ÷ 3 = _ | D | X | | 2% | 1% | 1% |
| 3 | Counting with numbers less than 20 | Count 12 birds | C | | | 94% | 93% | 1% |
| 35 | Volume of rectangular block | Count cubes. 2cm x 3cm x 4cm. | V | | | 5% | 4% | 1% |
| 5 | Add 5p, 2p and 1p coins | 2p + 5p + 1p + 1p = _ | A | £ | | 86% | 85% | 1% |
| 8 | Multiplication in a word problem | 3 x 4 = _ | M | E | | 58% | 57% | 1% |

## National Numeracy Project - June 1998
## Year : 2 Cohort: 2

| Item Facilities Report | | | | | | | | Project - National |
|---|---|---|---|---|---|---|---|---|
| 1 | Counting two groups, total less than 10 | 4 dogs and 5 cats. How many animals altogether? | A | E | | 98% | 97% | 1% |
| 6 | Comparing heights | Draw a ring around the shortest person | L | | | 92% | 92% | 0% |

# National Numeracy Project - June 1998
## Year : 2 Cohort: 2

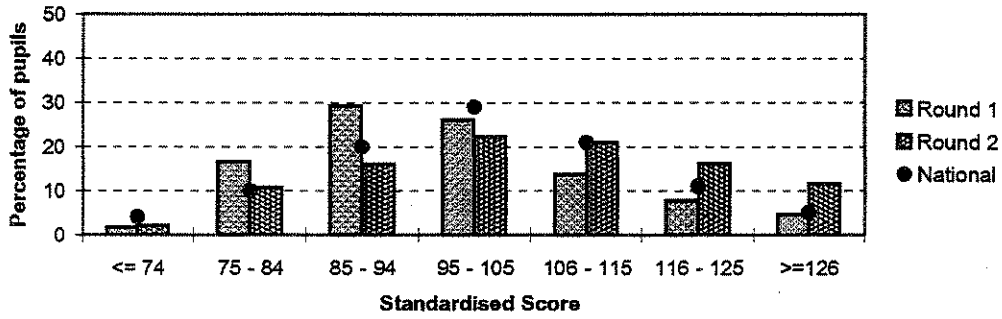
### Item Facilities Report

| Item No. | Mental Test | Mathematical content | | | | Project | National | Project - National Difference |
|---|---|---|---|---|---|---|---|---|
| 16 | 'Write to the nearest ten', -rounding to nearest ten | Write 93 to the nearest ten | G | | | 30% | 12% | 18% |
| 6 | 'Altogether' in word problem, multiples of 100 | Paula runs 200 metres and then another 300 metres. How far does she run altogether? | A | L | | 55% | 40% | 15% |
| 8 | 'Take' single digit from two digit number | Take 6 from 18 | S | | | 44% | 30% | 14% |
| 11 | 'Write two numbers which add up to...' | Write two numbers which add up to 14 | A | O | | 63% | 49% | 13% |
| 14 | 'Divide by', 2 | Divide 16 by 2 | D | | | 24% | 12% | 12% |
| 4 | 'Times', 2 and 5 | 2 times 5 | M | | | 59% | 47% | 12% |
| 12 | 'Write in figures', three digit number | Write in figures the number 506 | P | | | 46% | 34% | 12% |
| 18 | 'Difference between', teens and single digit number | Difference between 16 and 7 | S | | | 24% | 13% | 11% |
| 15 | 'Subtract', 30 from two digit number | 56 subtract 30 | S | | | 19% | 10% | 9% |
| 5 | 'How many altogether?', two digit number and 10 | How many are 39 and 10 altogether | A | | | 56% | 47% | 9% |
| 3 | Addition of money, in a word problem | Mark has a 20 pence coin. Vijay gives him 6p. How much has he now? | A | £ | | 70% | 61% | 8% |
| 13 | 'I am thinking of a number', two digit numbers | I subtract 20. Answer is 70. What number did I start with? | S | B | | 17% | 9% | 8% |
| 7 | 'Share equally among', in a word problem | 60p is shared equally among 6 children. How much each? | D | £ | | 42% | 34% | 8% |
| 19 | 'Add', two digit numbers, crossing tens | 28 add 43 | A | | | 13% | 6% | 8% |
| 9 | Addition of time (hours) in a word problem | Clock says four o'clock. Time in 3 hours? | A | T | | 50% | 43% | 7% |
| 10 | 'Take away', 10 from teens number | What number taken away from 16 leaves 10? | S | | | 49% | 42% | 7% |
| 17 | Multiply money, in a word problem | One toy costs £1.50. How much do three cost? | M | £ | | 13% | 7% | 6% |
| 2 | 'Add', using 3 single digit numbers | 5 add 3 add 2 | A | | | 81% | 76% | 5% |
| 1 | 'Take away', using single digit numbers | 7 take away 5 | S | | | 80% | 75% | 5% |

# National Numeracy Project - June 1998
## Year : 2 Cohort : 2

| Project Level | No. of Round 1 Pupils | 8336 |
|---|---|---|
| | No. of Round 2 Pupils | 9570 |

**Chart 1 : Overall Test Score distribution**




*The above chart shows the percentage of pupils in the project in the different age-standardised score bands for the first and second round of testing and compared with the National standardised score distribution. Similar distributions for the written and mental tests are shown below.*

**Chart 2: Written Test Score distribution**

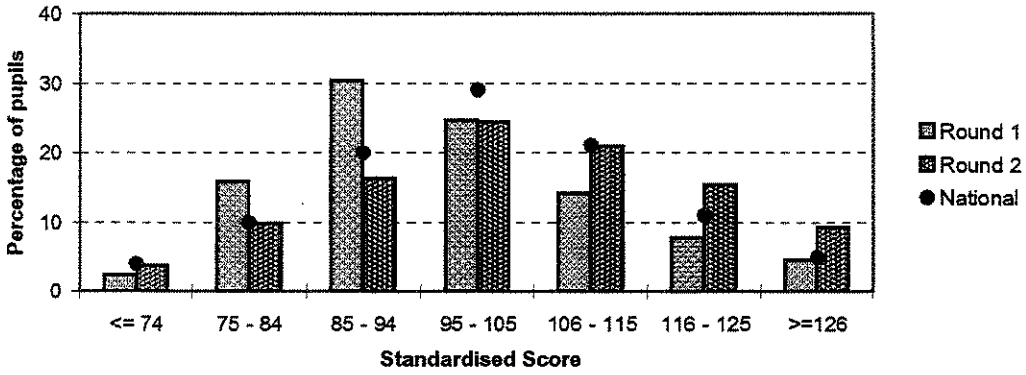
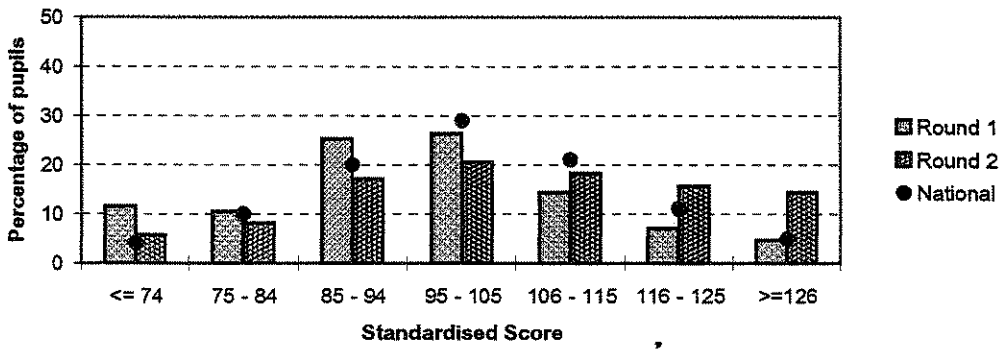


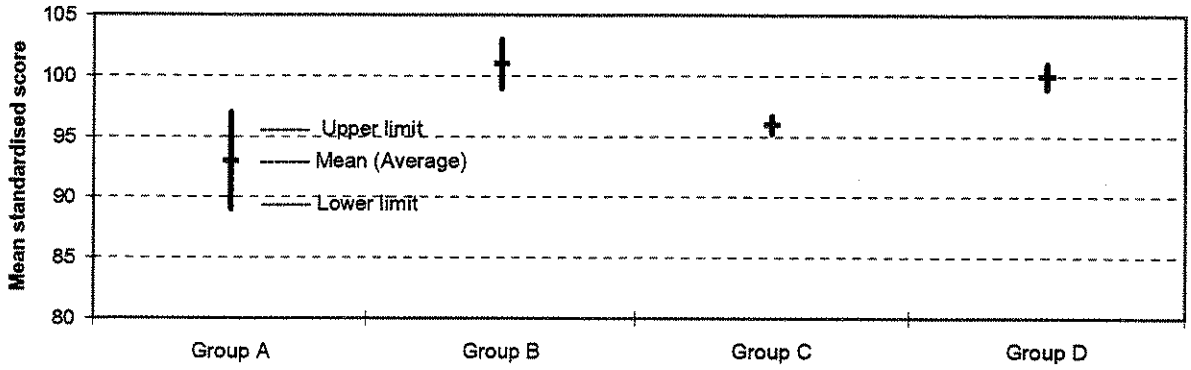

**Chart 3 : Mental Test Score distribution**



*(continued)* **National Numeracy Project - June 1998**
**Year : 2 Cohort : 2**

**Project Level** | **No. of Round 1 Pupils** 8336 | **No. of Round 2 Pupils** 9570

**Example Chart : Mean scores**




*The above example shows, for each of four groups, the mean (average) standardised score and an estimate of the "95% confidence band" for each of these mean scores. Such a band means that we can be 95% certain that the mean score lies between the upper and lower limits of the vertical line, as annotated for Group A. If the top of a vertical line is lower than the bottom of another vertical line, then it is likely that there is a real difference between the two groups. If on the other hand the vertical lines overlap, then it is likely that any difference between the two scores is not significant. In this example, the difference between Groups A and B is likely to be real but the difference between Groups B and D is not significant.*

**Chart 4 : Mean scores for second round of testing**

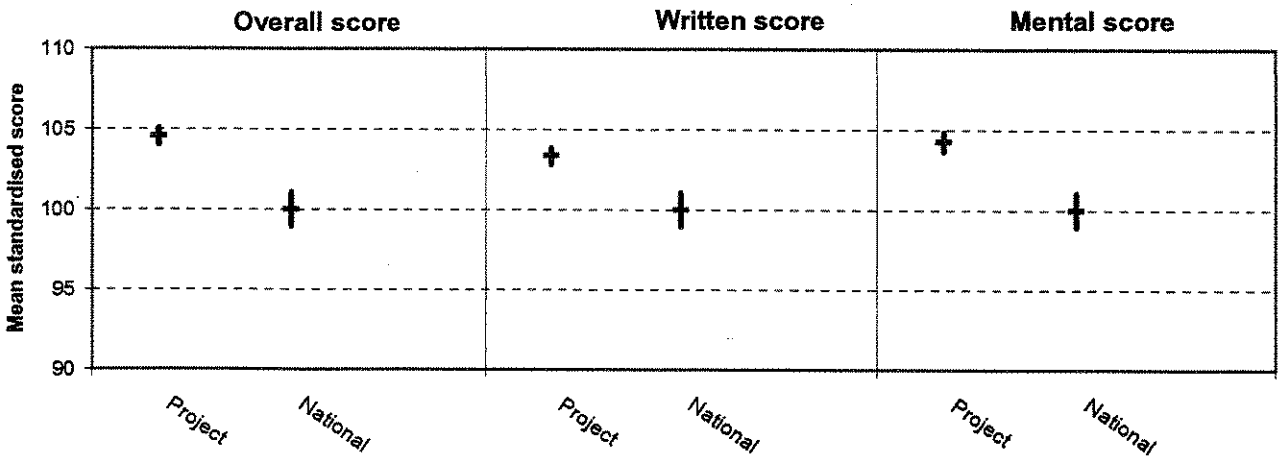



*Chart 4 shows the mean (average) score for the project as a whole and compares it with the National Standardisation sample.*

*(continued)*

## National Numeracy Project - June 1998
## Year : 2 Cohort : 2

| Project Level | No. of Round 1 Pupils | 8336 |
|---|---|---|
| | No. of Round 2 Pupils | 9570 |

**Chart 5 : Mean project scores for second round of testing**

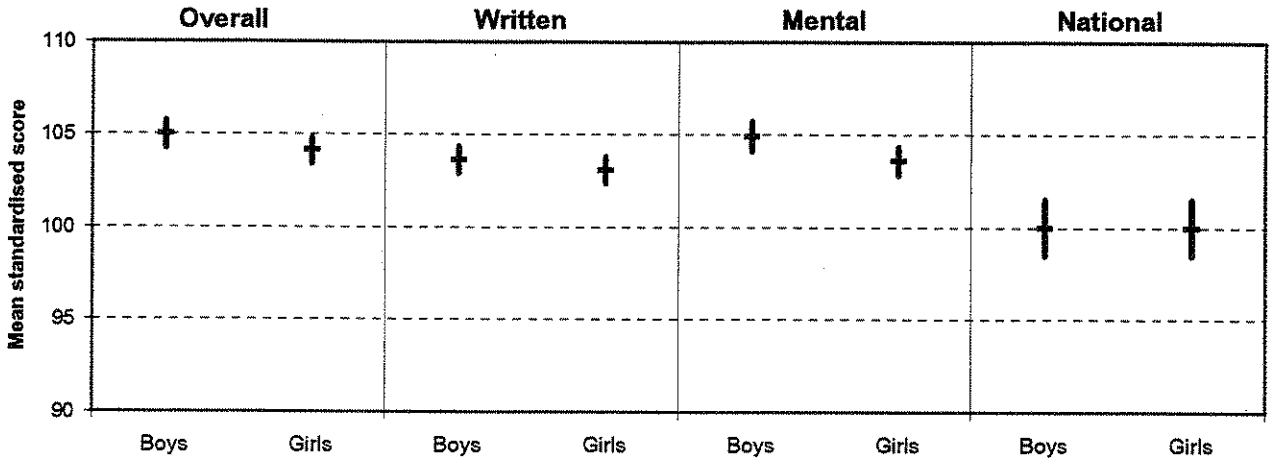



*Chart 5 shows the mean (average) score in the project separately for boys and girls and compares it with the National Standardisation sample.*

**Chart 6 : Mean Standardised scores by term of Birth**

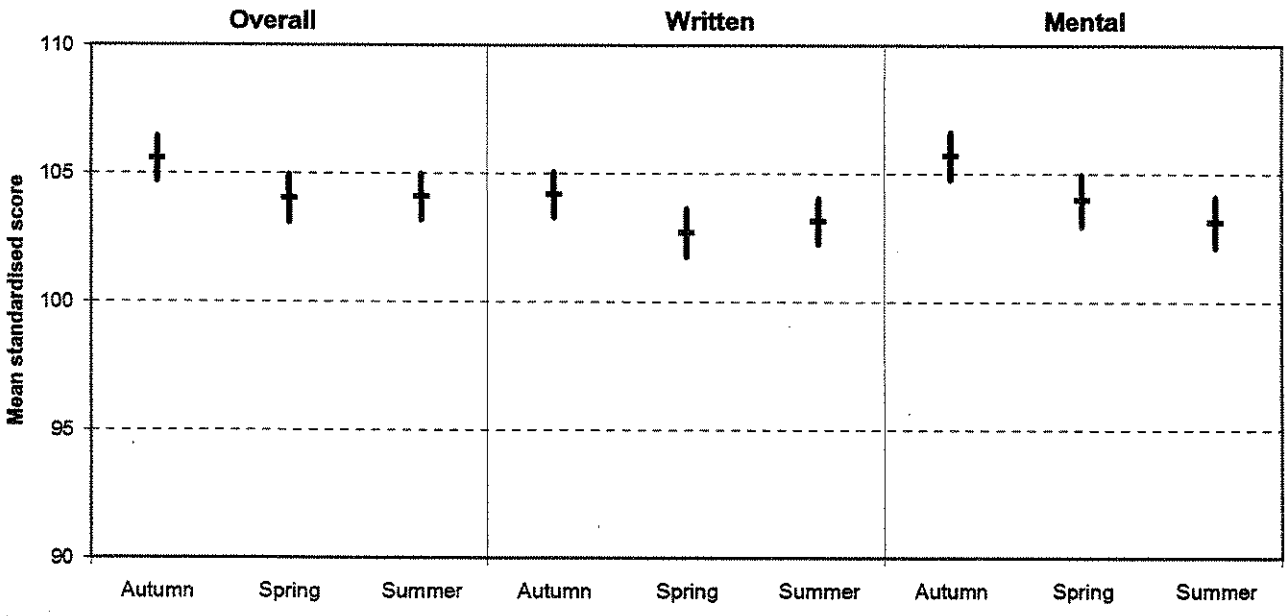



*Chart 6 shows the comparison of the mean (average) score of pupils born in the Autumn, Spring and Summer.*

*(continued)*

## National Numeracy Project - June 1998

**Year : 2 Cohort : 2**

| Project Level | No. of Round 1 Pupils | 8336 |
|---|---|---|
| | No. of Round 2 Pupils | 9570 |

**Chart 7 : Mean Progress scores**

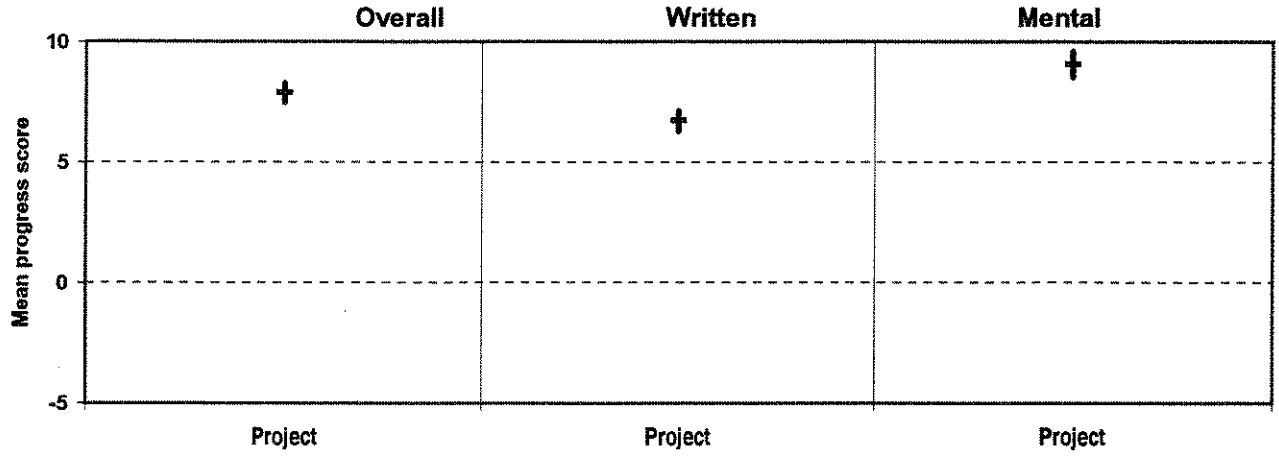



*Chart 7 shows the average progress made by the pupils between the first and second rounds of testing. Progress is measured by the difference in the standardised scores between both rounds of testing.*
*Any line which lies completely above the horizontal zero line indicates significant progress from Round1 to Round 2.*

# Cohort 2 – Year 3

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# Project Report 1 - National Numeracy Project - June 1998
## Cohort 2 - Year 3 - Mean Standardised Test Scores
## Summary by background data- ALL LEAs

| | | Written Round 2 | | Mental Round 2 | | Overall Round 2 | | Written Progress | | Mental Progress | | Overall Progress | | No. of pupils absent | Total no. of pupils | Percent of pupils |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | | | |
| Total | | 101.9 | 16.0 | 102.2 | 16.1 | 102.4 | 15.9 | 4.3 | 10.3 | 4.6 | 13.2 | 4.2 | 9.8 | 2205 | 9986 | 100% |
| Gender | Boys | 102.5 | 16.5 | 102.8 | 16.7 | 103.0 | 16.4 | 4.9 | 10.3 | 4.6 | 13.4 | 4.5 | 9.8 | 1119 | 5023 | 50% |
| | Girls | 101.4 | 15.4 | 101.6 | 15.4 | 101.9 | 15.3 | 3.8 | 10.3 | 4.5 | 13.0 | 3.8 | 9.7 | 1084 | 4961 | 50% |
| | Not known | 101.0 | | 99.0 | | 101.0 | | | | | | | | 2 | 2 | 0% |
| Ethnic group | White | 103.4 | 15.8 | 103.7 | 15.7 | 104.0 | 15.7 | 4.1 | 10.3 | 4.1 | 12.8 | 3.9 | 9.6 | 1283 | 6502 | 65% |
| | Black Caribbean | 97.5 | 15.3 | 98.9 | 16.0 | 98.3 | 15.3 | 3.6 | 10.9 | 5.1 | 14.4 | 3.8 | 10.1 | 85 | 531 | 5% |
| | Black African | 100.4 | 16.3 | 101.2 | 16.7 | 101.1 | 16.3 | 5.4 | 9.5 | 5.0 | 13.7 | 5.0 | 9.5 | 86 | 391 | 4% |
| | Black Other | 97.9 | 14.2 | 97.6 | 16.8 | 98.0 | 15.1 | 3.5 | 10.0 | .8 | 14.9 | 2.0 | 10.2 | 21 | 108 | 1% |
| | Indian | 103.7 | 15.8 | 104.1 | 15.8 | 104.3 | 15.7 | 3.8 | 10.5 | 4.5 | 13.8 | 3.9 | 10.0 | 60 | 371 | 4% |
| | Pakistani | 96.0 | 15.2 | 96.2 | 15.8 | 96.2 | 15.2 | 5.6 | 10.1 | 6.0 | 12.7 | 5.3 | 9.5 | 198 | 784 | 8% |
| | Bangladeshi | 98.7 | 15.3 | 98.2 | 16.1 | 98.8 | 15.4 | 5.7 | 11.1 | 7.6 | 15.5 | 6.1 | 10.7 | 302 | 687 | 7% |
| | Other | 100.1 | 16.9 | 100.0 | 16.9 | 100.4 | 16.7 | 4.7 | 10.7 | 5.7 | 13.6 | 4.9 | 10.2 | 159 | 590 | 6% |
| | Not known | 99.7 | 12.3 | 97.0 | 18.2 | 99.0 | 13.0 | 6.7 | 8.6 | 7.2 | 15.0 | 6.4 | 8.9 | 11 | 22 | 0% |
| Receives Free School Meals? | Yes | 97.2 | 15.3 | 97.9 | 16.0 | 97.7 | 15.5 | 4.5 | 10.4 | 5.2 | 13.3 | 4.5 | 9.7 | 1048 | 3673 | 37% |
| | No | 104.7 | 15.7 | 104.8 | 15.5 | 105.2 | 15.5 | 4.3 | 10.3 | 4.2 | 13.1 | 4.0 | 9.8 | 1070 | 6103 | 61% |
| | Not known | 98.3 | 16.4 | 99.6 | 16.7 | 99.0 | 16.5 | 3.6 | 9.3 | 5.0 | 13.1 | 3.6 | 8.4 | 87 | 210 | 2% |
| Special Educational Needs level | None | 106.0 | 14.5 | 106.1 | 14.7 | 106.6 | 14.4 | 4.6 | 10.5 | 4.8 | 13.3 | 4.5 | 10.0 | 1570 | 7499 | 75% |
| | Stage 1 | 92.3 | 13.2 | 94.0 | 14.1 | 93.0 | 13.1 | 4.0 | 10.6 | 5.1 | 13.4 | 4.0 | 9.7 | 212 | 1008 | 10% |
| | Stage 2 | 87.7 | 11.9 | 88.8 | 12.6 | 87.9 | 11.7 | 3.1 | 9.3 | 3.3 | 12.9 | 2.6 | 8.5 | 248 | 945 | 9% |
| | Stage 3 | 84.2 | 12.7 | 85.3 | 14.3 | 84.5 | 12.9 | 2.4 | 8.7 | 2.4 | 11.1 | 1.6 | 7.9 | 102 | 321 | 3% |
| | Stage 4 or above | 82.8 | 16.1 | 80.3 | 13.5 | 81.7 | 14.9 | 3.0 | 9.3 | -.1 | 10.2 | .9 | 7.7 | 49 | 147 | 1% |
| | Not known | 101.7 | 15.6 | 99.9 | 15.4 | 101.3 | 15.4 | 4.2 | 5.9 | 9.8 | 10.0 | 5.7 | 5.6 | 24 | 66 | 1% |
| | | | | | | | | | | | | | | 1 | 1 | 0% |
| Stage of Learning English | 0 | 98.0 | | 107.0 | | 101.0 | | | | | | | | 112 | 195 | 2% |
| | New to English | 87.0 | 13.3 | 86.9 | 14.4 | 86.8 | 13.2 | 3.6 | 8.5 | 4.3 | 14.7 | 2.8 | 8.6 | 228 | 717 | 7% |
| | Becoming familiar with English | 92.8 | 14.8 | 92.5 | 15.2 | 92.7 | 14.7 | 4.4 | 10.8 | 4.7 | 13.7 | 4.0 | 10.3 | 285 | 941 | 9% |
| | Becoming confident with English | 100.1 | 15.3 | 100.7 | 15.8 | 100.7 | 15.3 | 5.7 | 10.6 | 6.1 | 14.1 | 5.6 | 10.3 | 119 | 660 | 7% |
| | Very fluent in most contexts | 104.4 | 14.4 | 104.2 | 14.8 | 104.8 | 14.2 | 5.9 | 10.2 | 7.0 | 13.6 | 6.2 | 9.5 | 1442 | 7441 | 75% |
| | English first language | 103.0 | 15.9 | 103.4 | 15.8 | 103.6 | 15.8 | 4.1 | 10.3 | 4.2 | 13.0 | 3.9 | 9.7 | 18 | 31 | 0% |
| | Not known | 96.3 | 15.3 | 94.3 | 17.0 | 95.7 | 15.3 | -.2 | 14.3 | 2.0 | 12.6 | .3 | 10.2 | | | |

* Number of pupils absent from either rounds of testing

# Project Report 1 - National Numeracy Project - June 1998
## Cohort 2 - Year 3 - Mean Standardised Test Scores
## Summary by background data- ALL LEAs

| | | Written Round 2 | | Mental Round 2 | | Overall Round 2 | | Written Progress | | Mental Progress | | Overall Progress | | No. of pupils absent | Total no. of pupils | Percent of pupils |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | | | |
| No. of terms Primary Education | 4 terms or less | 100.1 | 16.5 | 100.6 | 17.0 | 100.5 | 16.3 | 6.7 | 10.8 | 6.2 | 13.6 | 6.0 | 9.7 | 29 | 81 | 1% |
| | 5 | 102.2 | 16.6 | 100.7 | 15.9 | 102.0 | 15.8 | 7.8 | 8.4 | 4.3 | 15.7 | 6.1 | 7.9 | 14 | 83 | 1% |
| | 6 | 97.5 | 18.2 | 97.1 | 19.3 | 97.5 | 18.8 | 3.5 | 8.0 | 3.5 | 13.3 | 2.7 | 8.0 | 12 | 52 | 1% |
| | 7 | 96.1 | 14.3 | 94.9 | 14.3 | 95.6 | 14.0 | 7.5 | 10.8 | 3.5 | 14.0 | 5.6 | 10.0 | 22 | 70 | 1% |
| | 8 | 101.5 | 16.2 | 101.6 | 17.1 | 102.0 | 16.5 | 3.7 | 11.1 | 5.4 | 14.5 | 3.9 | 10.6 | 51 | 362 | 4% |
| | 9 | 101.5 | 15.6 | 101.8 | 15.8 | 101.9 | 15.4 | 4.0 | 10.5 | 4.7 | 13.6 | 4.0 | 10.0 | 125 | 848 | 8% |
| | 10 | 102.5 | 15.9 | 102.7 | 16.0 | 103.0 | 15.8 | 4.5 | 9.6 | 4.4 | 13.2 | 4.2 | 9.3 | 295 | 1808 | 18% |
| | 11 | 103.3 | 15.7 | 103.5 | 15.7 | 103.8 | 15.6 | 4.1 | 10.5 | 4.1 | 12.8 | 3.9 | 9.8 | 740 | 5168 | 52% |
| | 12 | 100.4 | 15.7 | 101.9 | 15.6 | 101.3 | 15.6 | 5.5 | 10.3 | 8.0 | 13.9 | 6.2 | 10.2 | 29 | 352 | 4% |
| | Not known | 96.4 | 15.9 | 97.2 | 16.4 | 96.9 | 16.0 | 5.4 | 10.4 | 7.7 | 14.8 | 5.9 | 10.1 | 888 | 1162 | 12% |
| KS1 Teacher Assessment level- Number | | 99.2 | 16.1 | 99.9 | 16.6 | 99.8 | 16.2 | 6.4 | 9.9 | 8.0 | 12.5 | 6.8 | 9.2 | 798 | 1547 | 15% |
| | 1 | 86.8 | 10.8 | 88.2 | 11.8 | 87.1 | 10.5 | 3.7 | 9.8 | 4.0 | 12.7 | 3.2 | 8.9 | 320 | 1719 | 17% |
| | 2 | 104.4 | 13.0 | 104.7 | 13.3 | 105.0 | 12.8 | 4.6 | 10.7 | 4.9 | 13.4 | 4.5 | 10.1 | 867 | 5373 | 54% |
| | 3 | 119.6 | 10.2 | 118.3 | 11.3 | 120.1 | 10.0 | 2.9 | 9.8 | 2.1 | 13.4 | 2.4 | 9.6 | 177 | 1159 | 12% |
| | W | 77.6 | 7.3 | 77.7 | 10.2 | 77.3 | 7.6 | 2.8 | 6.8 | -.4 | 10.2 | .7 | 6.6 | 43 | 188 | 2% |
| KS1 Mathematics Task/Test level | | 99.5 | 16.4 | 100.0 | 16.8 | 100.0 | 16.5 | 4.5 | 10.8 | 6.3 | 13.1 | 4.9 | 10.1 | 793 | 1572 | 16% |
| | 1 | 85.7 | 10.0 | 87.2 | 11.4 | 86.0 | 9.8 | 3.7 | 9.3 | 4.2 | 12.4 | 3.3 | 8.5 | 281 | 1468 | 15% |
| | 2 | 100.7 | 13.0 | 97.7 | 11.2 | 99.8 | 11.4 | .6 | 13.9 | -4.8 | 12.1 | -1.8 | 10.2 | 23 | 84 | 1% |
| | 2A | 110.4 | 11.1 | 110.2 | 11.7 | 111.1 | 10.9 | 5.0 | 10.7 | 4.9 | 13.2 | 4.9 | 10.1 | 301 | 1840 | 18% |
| | 2B | 102.9 | 11.4 | 103.5 | 12.3 | 103.6 | 11.1 | 5.1 | 10.8 | 5.8 | 13.7 | 5.3 | 10.3 | 257 | 1583 | 16% |
| | 2C | 95.8 | 11.1 | 97.1 | 12.2 | 96.4 | 11.0 | 4.6 | 10.5 | 6.1 | 13.1 | 4.9 | 9.7 | 285 | 1789 | 18% |
| | 3 | 119.2 | 10.5 | 117.5 | 11.6 | 119.5 | 10.2 | 3.1 | 9.8 | 1.3 | 13.2 | 2.1 | 9.4 | 233 | 1474 | 15% |
| | W | 77.8 | 7.9 | 78.2 | 10.3 | 77.6 | 7.9 | 3.5 | 7.3 | .6 | 10.3 | 1.5 | 6.5 | 32 | 176 | 2% |

* Number of pupils absent from either rounds of testing

# Project Report 2 - National Numeracy Project - June 1998
## Cohort 2 - Round 2 - Mean Standardised Test Scores
## Summary by LEA

*Year Group: 3*

| | | Written | | Mental | | Overall | | No. of pupils absent | Total no. of pupils |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | | |
| Total | | 101.9 | 16.0 | 102.2 | 16.1 | 102.4 | 15.9 | 1097 | 9986 |
| LEA | 1 | 101.4 | 16.1 | 101.7 | 16.6 | 101.9 | 16.2 | 27 | 759 |
| | 2 | 105.5 | 15.0 | 106.7 | 14.5 | 106.4 | 14.6 | 42 | 587 |
| | 3 | 107.2 | 15.3 | 107.2 | 15.0 | 107.8 | 15.1 | 12 | 321 |
| | 4 | 103.9 | 15.7 | 103.9 | 16.0 | 104.3 | 15.8 | 45 | 811 |
| | 5 | 101.5 | 16.0 | 102.1 | 15.3 | 102.1 | 15.7 | 42 | 1014 |
| | 6 | 100.8 | 16.6 | 101.3 | 17.3 | 101.5 | 16.6 | 46 | 784 |
| | 7 | 99.4 | 15.7 | 100.1 | 15.8 | 100.0 | 15.6 | 8 | 286 |
| | 8 | 100.8 | 16.0 | 100.9 | 15.4 | 101.2 | 15.6 | 22 | 550 |
| | 9 | 104.6 | 15.0 | 104.7 | 15.0 | 105.1 | 14.9 | 46 | 923 |
| | 10 | 99.4 | 15.3 | 99.2 | 15.7 | 99.6 | 15.3 | 263 | 682 |
| | 12 | 98.6 | 15.8 | 98.9 | 16.2 | 99.0 | 15.8 | 302 | 1407 |
| | 13 | 101.0 | 16.7 | 100.9 | 16.9 | 101.4 | 16.6 | 125 | 811 |
| | 14 | 101.2 | 15.1 | 102.6 | 15.6 | 102.1 | 15.2 | 98 | 644 |
| | 15 | 105.3 | 16.4 | 103.9 | 16.2 | 105.3 | 16.3 | 19 | 407 |

# Project Report 3 - National Numeracy Project - June 1998
# Cohort 2 - Round 2 - Mean Progress Standardised Test Scores
# Summary by LEA

*Year Group: 3*

| | | Written Progress Score | | Mental Progress Score | | Overall Progress Score | | No. of pupils absent | Total no. of pupils |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | | |
| Total | | 4.3 | 10.3 | 4.6 | 13.2 | 4.2 | 9.8 | 2205 | 9986 |
| LEA | 1 | 3.4 | 10.4 | 4.5 | 14.7 | 3.6 | 10.6 | 112 | 759 |
| | 2 | 1.5 | 10.6 | 2.3 | 13.2 | 1.5 | 9.7 | 100 | 587 |
| | 3 | 3.4 | 9.7 | 1.9 | 12.8 | 2.6 | 9.3 | 57 | 321 |
| | 4 | 5.2 | 10.5 | 5.7 | 12.5 | 5.2 | 9.7 | 130 | 811 |
| | 5 | 2.9 | 10.4 | 2.6 | 11.7 | 2.5 | 9.5 | 127 | 1014 |
| | 6 | 5.7 | 10.9 | 5.3 | 14.3 | 5.3 | 10.1 | 162 | 784 |
| | 7 | 4.7 | 9.2 | 5.7 | 13.0 | 4.8 | 8.8 | 56 | 286 |
| | 8 | 3.3 | 9.4 | 2.2 | 12.8 | 2.6 | 9.0 | 71 | 550 |
| | 9 | 5.0 | 10.3 | 4.8 | 13.0 | 4.7 | 9.7 | 152 | 923 |
| | 10 | 3.2 | 11.3 | 6.4 | 15.7 | 4.0 | 10.8 | 325 | 682 |
| | 12 | 6.0 | 10.0 | 6.4 | 12.3 | 5.7 | 9.2 | 456 | 1407 |
| | 13 | 3.3 | 11.2 | 3.0 | 13.9 | 2.9 | 10.6 | 232 | 811 |
| | 14 | 5.6 | 8.7 | 7.7 | 11.6 | 6.2 | 8.2 | 162 | 644 |
| | 15 | 6.7 | 9.9 | 5.0 | 12.8 | 5.9 | 9.2 | 63 | 407 |

# National Numeracy Project - June 1998
## Year : 3 Cohort: 2

### Item Facilities Report

| Item No. | Written Test | Mathematical content | | | | Project | National | Project - National Difference |
|---|---|---|---|---|---|---|---|---|
| 22 | Round three-digit number to nearest 100 | Write 357 to nearest 100 | G | | | 51% | 33% | 18% |
| 8 | Subtract 10 from a two digit number | 10 less than 78 | S | | | 64% | 53% | 11% |
| 16 | Doubling | Double 60 | M | | | 54% | 44% | 10% |
| 31 | Numbers divisible by 5 with no remainder | Ring two multiples of 5: 8 36 15 53 11 40 | N | | | 39% | 31% | 8% |
| 28 | Find the difference between a positive and a negative number in the context of a fall in temperature | Find difference between 5° and -4° | S | E | | 19% | 11% | 8% |
| 14 | Fraction recognition (one quarter) | Recognise a shaded quarter of a circle | F | | | 49% | 41% | 8% |
| 18 | | _ - 10 = 46 | S | B | | 58% | 50% | 8% |
| 26 | Multiply two-digit number by 2,not crossing tens | 71 x 2 = _ | M | X | | 28% | 21% | 7% |
| 42 | Find the perimeter of a rectangle | Perimeter of 72m x 100m rectangle, all sides marked | I | | | 14% | 7% | 7% |
| 19 | Divide two-digit number by 4 | 48 ÷ 4 = _ | D | | | 33% | 27% | 7% |
| 27 | Read temperature from scale | Read 13 °C on scale - 30° to 40° degrees,numbered every 10° | R | | | 46% | 39% | 6% |
| 36 | Approximate the addition of three-digit numbers | Round each part of 897 + 406 to nearest 100 | G | | | 19% | 13% | 6% |
| 24 | | 43 - _ = 37 | S | B | | 50% | 44% | 6% |
| 15 | Add two digit numbers,crossing tens | 27 + 36 = _ | A | | | 60% | 55% | 5% |
| 32 | Divide a two-digit number by 5 | 85 ÷ 5 = _ | D | | | 19% | 14% | 5% |
| 25 | Convert metres to centimetres | How many centimetres in 4 metres ? | M | L | | 38% | 33% | 5% |
| 34 | Add fractions | ½ + ¼ = _ | F | | | 16% | 11% | 5% |
| 38 | Fraction recognition (three tenths) | Recognise three tenths of a 2x5 rectangle | F | | | 12% | 7% | 5% |
| 35 | Add three-digit numbers, crossing 10s and 100s | 284 + 178 = _ | A | | | 25% | 20% | 5% |
| 30 | 2 step word problem involving x and + | 3 Oranges @ 11p and 1 pineapple @ 95p | M | A | £ | 25% | 20% | 5% |
| 21 | Read weight from scale | Read 400g on scale 0 to 3kg, numbered every 500g | R | | | 29% | 24% | 5% |
| 29 | Order numbers with one or two decimal places | Order 3.71 3.17 31.7 7.13 37.1 | P | | | 40% | 35% | 5% |
| 40 | Divide three-digit number by 25, in a word problem | 25 books in pack. Need 450 books. How many packs? | D | E | | 10% | 6% | 4% |
| 44 | Subtract decimals with one decimal place | 4.6 - 0.9 = _ | S | F | | 9% | 6% | 4% |
| 23 | Multiply teens number by 3, not crossing tens | 13 x 3 = _ | M | X | | 50% | 46% | 3% |
| 6 | Read time to half hour on a digital clock,add 1 hour | Read 10:30 on a digital clock.What time 1 hour later ? | A | T | | 61% | 57% | 3% |
| 33 | Subtract length, crossing tens, in a word problem | Ribbon 94 cm. Cut off 39 cm. How many cm left? | S | L | | 17% | 14% | 3% |

# National Numeracy Project - June 1998
## Year : 3 Cohort: 2

### Item Facilities Report

| Item No. | Written Test | Mathematical content | | | | Project | National | Project - National Difference |
|---|---|---|---|---|---|---|---|---|
| 5 | | 18 - _ = 13 | S | B | | 73% | 70% | 3% |
| 37 | Divide two-digit number by 3, with remainder | 67 ÷ 3 = _ | D | | | 7% | 5% | 2% |
| 7 | Find two numbers that add to.... | _ + _ = 28 | A | O | | 85% | 83% | 2% |
| 20 | Mutiply a single digit by itself(square number) | 6 x 6 = _ | M | N | | 49% | 47% | 2% |
| 41 | Subtract a four digit number from 3000 | 3000 - 1997 = _ | S | | | 5% | 3% | 2% |
| 2 | Add ten to teens number | 19+10= _ | A | X | | 89% | 87% | 2% |
| 39 | Subtract three-digit numbers, crossing 10s and 100s | 354 - 159 = _ | S | | | 10% | 8% | 2% |
| 17 | '15 percent of' | Ring even numbers in range 5 to 21 | N | | | 65% | 63% | 1% |
| 11 | Add three single digits | 3 + 4 / 8 = _ | A | | | 87% | 85% | 1% |
| 43 | Divide a two-digit number by 4, with remainder | 93 ÷ 4 = _ | D | | | 4% | 3% | 1% |
| 45 | Volume of cuboid by counting cubes | Number of cm cubes in 2cm x 3cm x 4cm cuboid | V | | | 8% | 8% | 0% |
| 12 | Order five numbers less than 100 | Order 73, 47, 6, 12, 55 | P | | | 91% | 90% | 0% |
| 1 | Count to 7 | Count 7 bags of crisps | A | | | 99% | 99% | 0% |
| 10 | Subtract single digit from teens number, in word problem | 12 Birds. 5 fly away. How many left ? | S | E | | 88% | 88% | 0% |
| 3 | Recognise and find the total of 5p,2p and 1p coins | 5p+2p+1p+1p How much altogether? | A | £ | | 92% | 92% | 0% |
| 13 | Divide money, in a word problem | 5 biscuits cost 25p. How much is one biscuit ? | D | E | | 72% | 72% | -1% |
| 9 | Read a bar chart,scale marked in ones | Read off the bar - 6 children | R | H | | 84% | 87% | -2% |
| 4 | Subtract single digits,in a word problem | E. has 4 apples. J. has 7.How many more has J ? | S | E | | 73% | 79% | -6% |

# National Numeracy Project - June 1998
## Year : 3 Cohort: 2

### Item Facilities Report

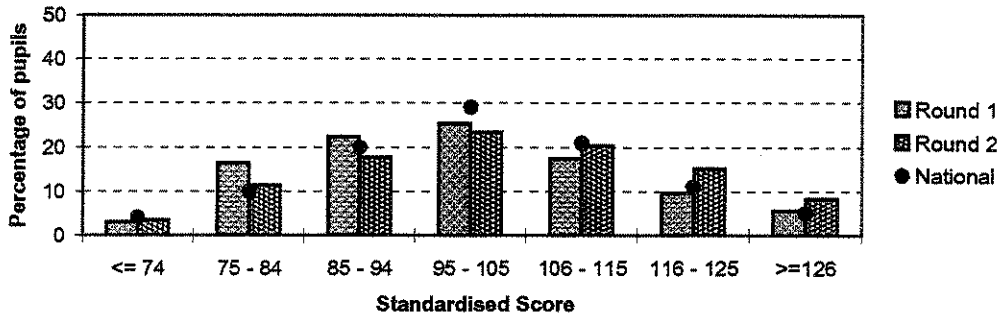
| Item No. | Mental Test | Mathematical content | | | | Project | National | Project - National Difference |
|---|---|---|---|---|---|---|---|---|
| 17 | 'Subtract' 30 from a two digit number | 56 subtract 30 | S | | | 37% | 26% | 11% |
| 12 | 'Write in figures' three digit number | Write in figures 506 | P | | | 69% | 58% | 11% |
| 14 | 'Write to the nearest hundred | Write 254 to nearest 10( | G | | | 39% | 30% | 10% |
| 16 | 'Multiply by' with single digits | Multiply six by four | M | | | 28% | 20% | 8% |
| 15 | 'Difference between' 10 and a two digit number; | Difference between 73 and 10 ? | S | | | 31% | 23% | 8% |
| 13 | Take away a number from....it leaves....what is the number ? | Take away a number from 81.It leaves 72.What's the number ? | S | B | | 39% | 32% | 7% |
| 7 | 'Sum of' two single digits, crossing ten | Sum of nine and eight | A | | | 59% | 52% | 7% |
| 21 | 'Add' two two digit numbers, crossing tens | 28 add 43 | A | | | 25% | 18% | 7% |
| 11 | 'Half of' two digit number | One half of 28 | D | | | 45% | 39% | 7% |
| 10 | 'Add' single digit to two digit number, crossing tens | Add 6 to 89 | A | | | 58% | 53% | 5% |
| 3 | 'Share' between two | Share 10 sweets equally between two | D | E | | 79% | 74% | 5% |
| 5 | 'Plus' with single digits | Four plus six | A | | | 77% | 73% | 4% |
| 22 | Division of length,in a word problem, no remainder | String is 84cm. Cut in 4.Length of each piece ? | D | L | | 15% | 10% | 4% |
| 19 | '....is more than....' How many more ? | 45 is more than 7. How many more ? | S | | | 14% | 9% | 4% |
| 23 | 'Divide by' 100, no remainder | Divide 700 by 10( | D | | | 16% | 13% | 3% |
| 2 | Addition of money,in a word problem | T. has 36p. R. gives her 10p. How much now ? | A | £ | | 78% | 75% | 3% |
| 20 | 'Multiplied by' with single digit numbers | Seven multiplied by nine | M | | | 12% | 10% | 3% |
| 6 | 'Times' by 10 | Eight times ten | M | | | 72% | 70% | 2% |
| 4 | 'Take away' single digit from a teens number | Twelve take away four | S | | | 77% | 75% | 2% |
| 1 | 'Add' three single digit numbers | Five add three add twc | A | | | 89% | 87% | 2% |
| 24 | What number multiplied by itself makes....?' | What number multiplied by itself makes 36 ? | N | | | 14% | 12% | 2% |
| 9 | 'Share' among 6 | 60p shared among 6 children. How much each ? | D | £ | | 62% | 60% | 2% |
| 18 | 'Remainder' when dividing by 6 | Remainder when 27 is divided by 6 | D | | | 9% | 7% | 2% |
| 8 | Multiplication in a word problem, single digits | 3 dominoes. Each has 5 dots. Dots altogether ? | M | E | | 79% | 78% | 0% |

# National Numeracy Project - June 1998

**Year : 3 Cohort : 2**

| Project Level | No. of Round 1 Pupils | 7796 |
|---|---|---|
| | No. of Round 2 Pupils | 8844 |

**Chart 1 : Overall Test Score distribution**




*The above chart shows the percentage of pupils in the project in the different age-standardised score bands for the first and second round of testing and compared with the National standardised score distribution. Similar distributions for the written and mental tests are shown below.*

**Chart 2: Written Test Score distribution**

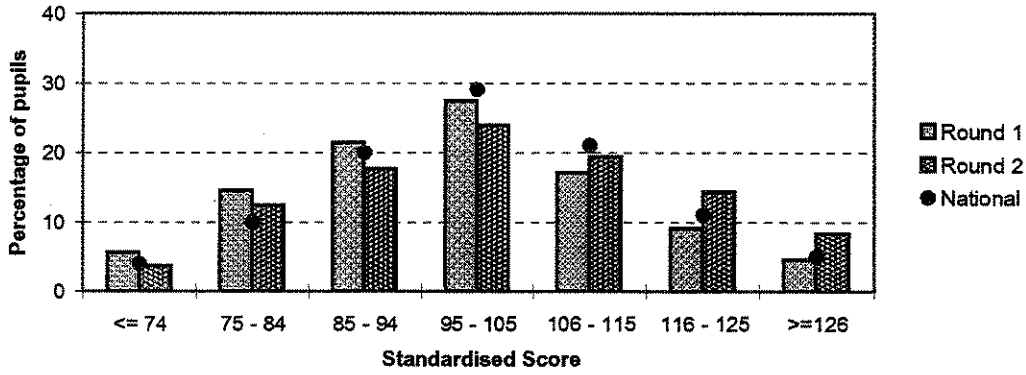
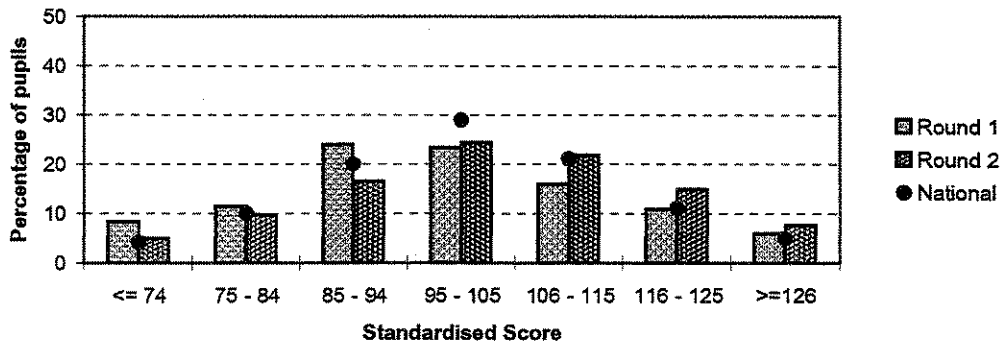
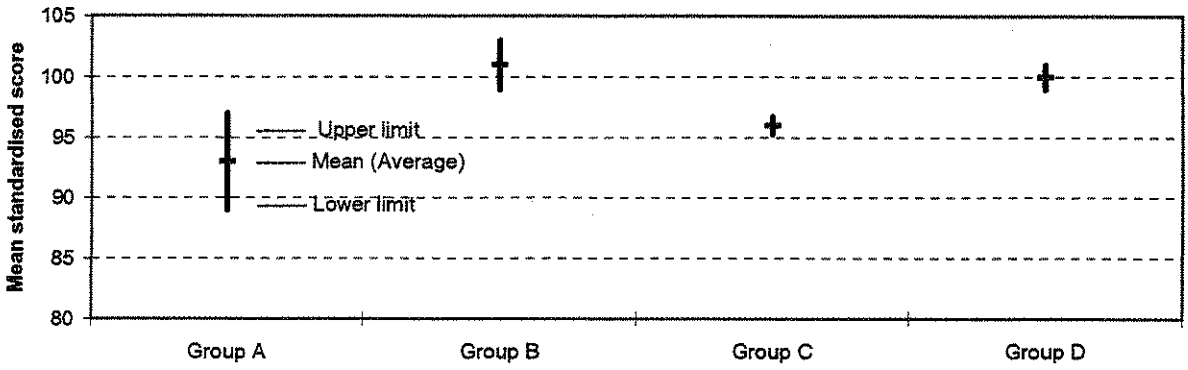



**Chart 3 : Mental Test Score distribution**



| **Project Level** | **No. of Round 1 Pupils** | **7796** |
|---|---|---|
| | **No. of Round 2 Pupils** | **8844** |

**Example Chart : Mean scores**




*The above example shows, for each of four groups, the mean (average) standardised score and an estimate of the "95% confidence band" for each of these mean scores. Such a band means that we can be 95% certain that the mean score lies between the upper and lower limits of the vertical line, as annotated for Group A. If the top of a vertical line is lower than the bottom of another vertical line, then it is likely that there is a real difference between the two groups. If on the other hand the vertical lines overlap, then it is likely that any difference between the two scores is not significant. In this example, the difference between Groups A and B is likely to be real but the difference between Groups B and D is not significant.*

**Chart 4 : Mean scores for second round of testing**

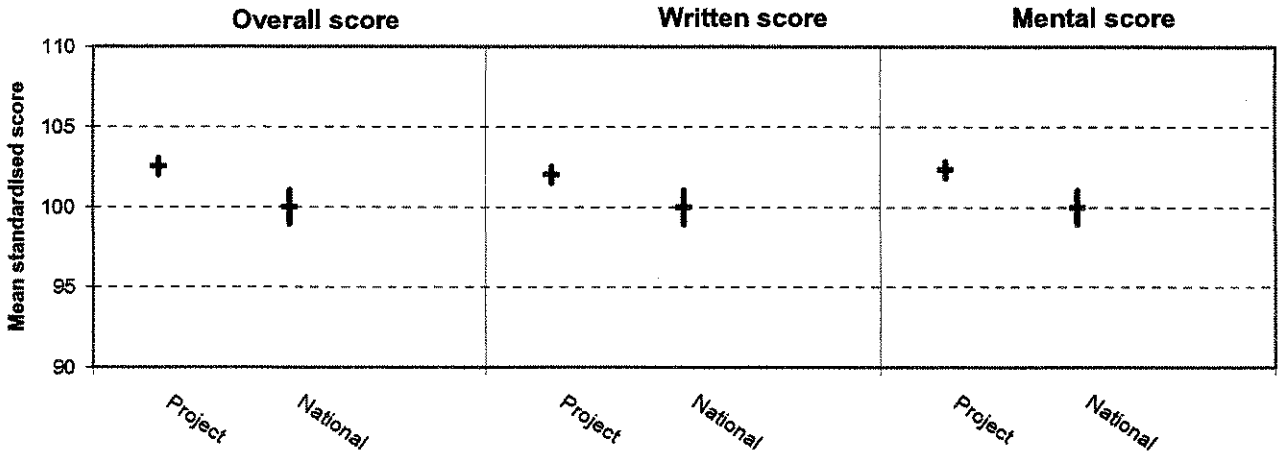



*Chart 4 shows the mean (average) score for the project as a whole and compares it with the National Standardisation sample.*

*(continued)*

## National Numeracy Project - June 1998
## Year : 3 Cohort : 2

| Project Level | No. of Round 1 Pupils | 7796 |
|---|---|---|
| | No. of Round 2 Pupils | 8844 |

**Chart 5 : Mean project scores for second round of testing**

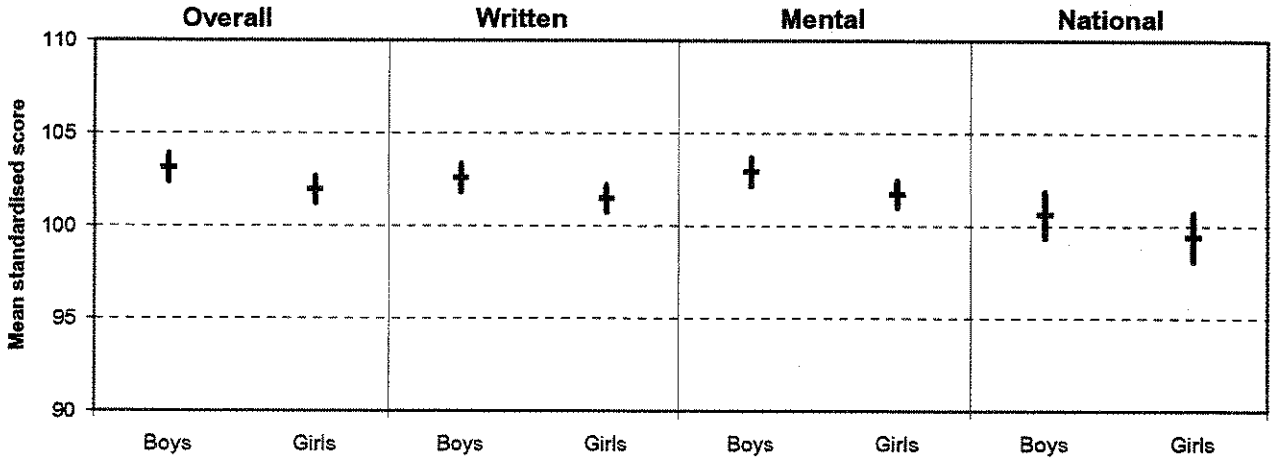



*Chart 5 shows the mean (average) score in the project separately for boys and girls and compares it with the National Standardisation sample.*

**Chart 6 : Mean Standardised scores by term of Birth**

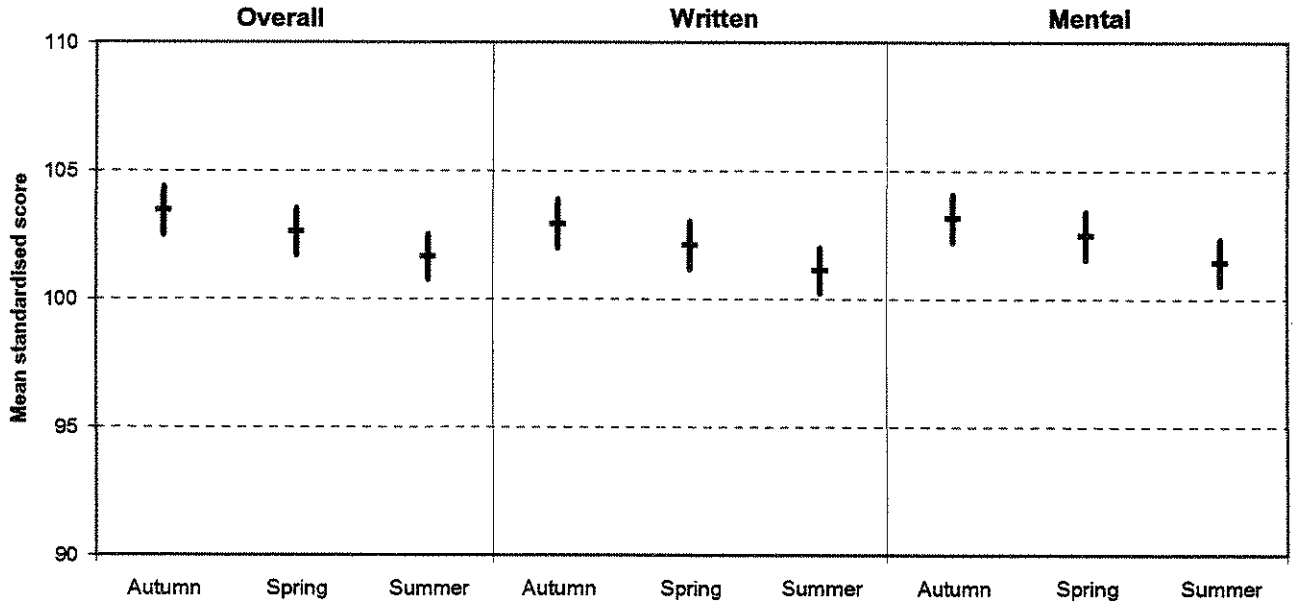



*Chart 6 shows the comparison of the mean (average) score of pupils born in the Autumn, Spring and Summer.*

*(continued)*

## National Numeracy Project - June 1998

**Year : 3** **Cohort : 2**

| Project Level | No. of Round 1 Pupils | 7796 |
|---|---|---|
| | No. of Round 2 Pupils | 8844 |

**Chart 7 : Mean Progress scores**

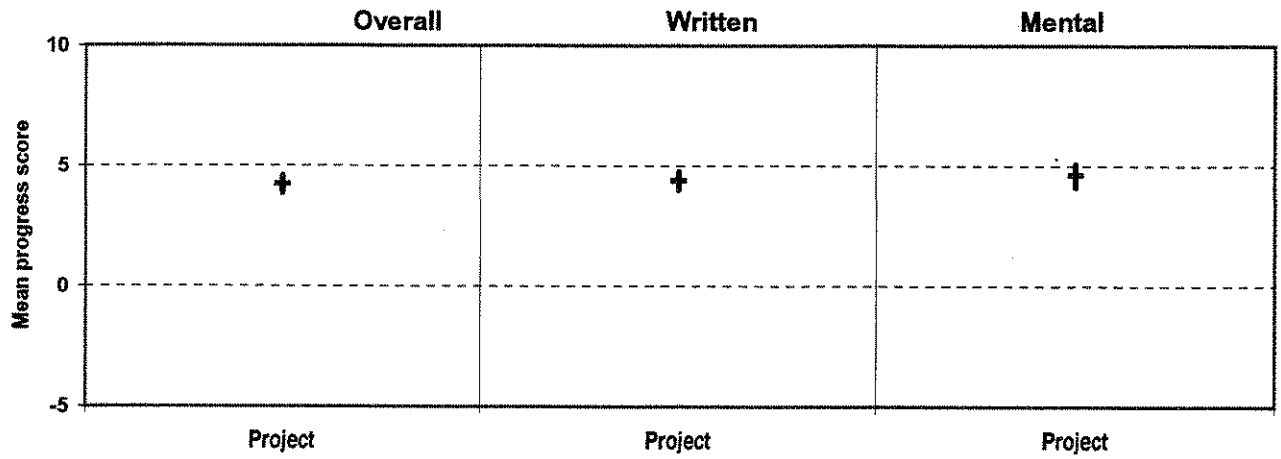



*Chart 7 shows the average progress made by the pupils between the first and second rounds of testing. Progress is measured by the difference in the standardised scores between both rounds of testing.*
*Any line which lies completely above the horizontal zero line indicates significant progress from Round1 to Round 2.*

# Cohort 2 – Year 5

**Contents:**


| | |
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| Project Report 1 | Standardised scores and progress measures by background data for Project |
| Project Report 2 | Round 2 Standardised scores by LEA |
| Project Report 3 | Progress scores (Round 1-2) by LEA |
| Item Facilities Report | Comparison of % of correct answers for Project with % from National standardisation sample |
| Chart 1 | Round 2 Overall Test score distribution |
| Chart 2 | Round 2 Written Test Score distribution |
| Chart 3 | Round 2 Mental Test Score distribution |
| Chart 4 | Mean scores for second round of testing |
| Chart 5 | Mean scores for Boys and Girls |
| Chart 6 | Mean scores by term of birth |
| Chart 7 | Mean Progress scores (Round 1 to Round 2) |

# Project Report 1 - National Numeracy Project - June 1998
## Cohort 2 - Year 5 - Mean Standardised Test Scores
## Summary by background data- ALL LEAs

| | | Written Round 2 | | Mental Round 2 | | Overall Round 2 | | Written Progress | | Mental Progress | | Overall Progress | | No. of pupils absent | Total no. of pupils | Percent of pupils |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | | | |
| Total | | 100.4 | 15.9 | 101.9 | 16.6 | 101.3 | 16.2 | 2.8 | 9.3 | 4.0 | 12.1 | 3.4 | 8.8 | 1962 | 9611 | 100% |
| Gender | Boys | 100.2 | 16.1 | 102.3 | 17.0 | 101.4 | 16.5 | 2.7 | 9.2 | 3.9 | 11.8 | 3.4 | 8.7 | 1026 | 4850 | 50% |
| | Girls | 100.5 | 15.7 | 101.6 | 16.2 | 101.3 | 15.8 | 2.8 | 9.3 | 4.0 | 12.3 | 3.5 | 8.8 | 924 | 4749 | 49% |
| | Not known | 98.0 | | 80.3 | 19.6 | 100.0 | | | | | | | | 12 | 12 | 0% |
| Ethnic group | White | 101.3 | 15.9 | 102.7 | 16.6 | 102.3 | 16.1 | 2.2 | 8.8 | 3.2 | 11.7 | 2.7 | 8.2 | 1323 | 6339 | 66% |
| | Black Caribbean | 97.0 | 15.6 | 99.9 | 16.8 | 98.4 | 16.1 | 2.9 | 10.2 | 4.7 | 12.5 | 3.9 | 9.5 | 88 | 544 | 6% |
| | Black African | 100.3 | 14.8 | 102.9 | 15.9 | 101.7 | 15.1 | 4.1 | 9.4 | 6.4 | 11.7 | 5.2 | 8.3 | 46 | 316 | 3% |
| | Black Other | 98.2 | 15.0 | 101.3 | 16.0 | 99.7 | 15.2 | 2.1 | 8.4 | 3.4 | 12.2 | 2.9 | 8.3 | 26 | 164 | 2% |
| | Indian | 103.6 | 15.5 | 104.6 | 16.7 | 104.5 | 15.8 | 5.8 | 10.0 | 5.7 | 13.0 | 6.2 | 9.8 | 62 | 428 | 4% |
| | Pakistani | 95.0 | 15.1 | 98.2 | 16.0 | 96.4 | 15.5 | 3.8 | 9.4 | 5.1 | 12.4 | 4.5 | 9.1 | 179 | 734 | 8% |
| | Bangladeshi | 96.9 | 15.6 | 97.3 | 16.3 | 97.3 | 15.8 | 4.6 | 11.7 | 6.6 | 13.6 | 5.2 | 11.5 | 125 | 540 | 6% |
| | Other | 100.9 | 15.9 | 102.4 | 16.7 | 101.9 | 16.3 | 3.5 | 9.5 | 5.4 | 12.4 | 4.5 | 9.1 | 85 | 513 | 5% |
| | Not known | 93.2 | 18.6 | 91.7 | 19.6 | 93.7 | 18.8 | 4.0 | 5.1 | 14.2 | 12.0 | 8.6 | 7.8 | 28 | 33 | 0% |
| Receives Free School Meals? | Yes | 94.8 | 15.1 | 97.0 | 15.9 | 95.8 | 15.3 | 2.0 | 9.7 | 3.6 | 12.4 | 2.8 | 9.1 | 803 | 3524 | 37% |
| | No | 103.7 | 15.4 | 104.9 | 16.3 | 104.6 | 15.7 | 3.2 | 9.0 | 4.2 | 11.8 | 3.8 | 8.5 | 1093 | 6007 | 63% |
| | Not known | 94.9 | 18.8 | 95.0 | 19.7 | 95.6 | 19.6 | 8.0 | 9.1 | 8.4 | 12.7 | 8.6 | 8.3 | 66 | 80 | 1% |
| Special Educational Needs level | None | 104.6 | 14.5 | 106.2 | 15.4 | 105.8 | 14.7 | 3.0 | 9.4 | 4.4 | 12.2 | 3.7 | 8.9 | 1338 | 7055 | 73% |
| | Stage 1 | 90.2 | 12.5 | 91.8 | 12.9 | 90.7 | 12.4 | 2.3 | 9.2 | 2.6 | 11.9 | 2.6 | 8.5 | 200 | 931 | 10% |
| | Stage 2 | 87.1 | 12.1 | 89.5 | 12.8 | 87.8 | 11.9 | 2.3 | 9.2 | 2.8 | 11.0 | 2.6 | 8.2 | 196 | 881 | 9% |
| | Stage 3 | 82.8 | 11.6 | 84.2 | 11.8 | 83.1 | 11.3 | 2.1 | 8.1 | 1.9 | 10.8 | 2.2 | 7.5 | 93 | 307 | 3% |
| | Stage 4 or above | 80.6 | 12.3 | 81.0 | 12.5 | 80.4 | 12.0 | 1.6 | 9.0 | 1.7 | 10.6 | 1.9 | 7.6 | 69 | 216 | 2% |
| | Not known | 98.7 | 15.4 | 101.4 | 17.0 | 100.1 | 15.9 | 1.8 | 8.4 | 4.4 | 12.9 | 3.0 | 8.2 | 66 | 221 | 2% |
| Stage of Learning English | New to English | 84.3 | 13.1 | 85.6 | 13.5 | 84.3 | 13.0 | 2.8 | 8.4 | 4.2 | 12.7 | 3.6 | 8.7 | 38 | 88 | 1% |
| | Becoming familiar with English | 90.2 | 13.8 | 92.0 | 14.7 | 90.8 | 13.9 | 3.8 | 11.0 | 4.4 | 11.7 | 4.3 | 9.9 | 93 | 442 | 5% |
| | Becoming confident with English | 95.4 | 13.8 | 97.6 | 15.0 | 96.5 | 14.1 | 4.3 | 10.4 | 5.6 | 12.9 | 4.8 | 10.4 | 209 | 880 | 9% |
| | Very fluent in most contexts | 105.5 | 15.3 | 107.1 | 16.3 | 106.7 | 15.6 | 5.0 | 9.8 | 7.1 | 12.9 | 6.1 | 9.4 | 153 | 796 | 8% |
| | English first language | 101.2 | 15.9 | 102.7 | 16.5 | 102.2 | 16.1 | 2.3 | 8.9 | 3.4 | 11.8 | 2.9 | 8.3 | 1448 | 7351 | 76% |
| | Not known | 95.2 | 10.5 | 98.7 | 14.7 | 97.4 | 11.3 | -.9 | 7.6 | 5.8 | 13.5 | 1.9 | 8.2 | 21 | 54 | 1% |

*** Number of pupils absent from either rounds of testing**

# Project Report 1 - National Numeracy Project - June 1998
## Cohort 2 - Year 5 - Mean Standardised Test Scores
## Summary by background data- ALL LEAs

| | | Written Round 2 | | Mental Round 2 | | Overall Round 2 | | Written Progress | | Mental Progress | | Overall Progress | | No. of pupils absent | Total no. of pupils | Percent of pupils |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | | | |
| No. of terms Primary Education | 4 terms or less | 104.7 | 18.4 | 109.1 | 15.7 | 106.7 | 17.4 | .7 | 7.1 | 6.2 | 9.4 | 2.7 | 6.2 | 3 | 9 | 0% |
| | 5 | 100.0 | 43.8 | 95.5 | 37.5 | 100.0 | 43.8 | 5.0 | 15.6 | -5.5 | 6.4 | 2.5 | 13.4 | 1 | 3 | 0% |
| | 6 | 101.3 | 21.9 | 100.3 | 17.1 | 101.5 | 19.9 | 1.7 | 8.8 | 6.0 | 11.3 | 3.7 | 6.9 | 1 | 7 | 0% |
| | 7 | 98.9 | 15.3 | 103.6 | 17.4 | 101.2 | 16.4 | 4.7 | 12.9 | 9.3 | 19.3 | 7.1 | 13.1 | 5 | 18 | 0% |
| | 8 | 92.7 | 16.2 | 92.8 | 18.4 | 92.5 | 16.6 | 2.5 | 10.5 | 3.8 | 15.2 | 2.8 | 9.0 | 7 | 31 | 0% |
| | 9 | 97.7 | 12.1 | 101.0 | 16.6 | 99.1 | 14.0 | 2.6 | 7.3 | 2.2 | 9.5 | 2.8 | 6.1 | 3 | 13 | 0% |
| | 10 | 93.4 | 13.2 | 101.8 | 15.7 | 96.8 | 14.3 | -5.2 | 11.1 | 6.5 | 12.3 | -1.0 | 10.5 | 2 | 13 | 0% |
| | 11 | 94.6 | 16.3 | 96.0 | 16.2 | 95.2 | 16.5 | 4.3 | 8.8 | 6.7 | 10.3 | 5.6 | 8.5 | 8 | 37 | 0% |
| | 12 | 86.1 | 11.4 | 90.0 | 14.9 | 87.1 | 12.4 | 3.5 | 7.9 | 4.3 | 11.7 | 3.9 | 7.2 | 1 | 12 | 0% |
| | 13 | 95.1 | 15.2 | 93.1 | 15.0 | 94.4 | 14.9 | .6 | 10.6 | 1.3 | 9.6 | .8 | 9.3 | 5 | 46 | 0% |
| | 14 | 98.7 | 16.0 | 100.3 | 16.7 | 99.6 | 16.4 | 3.9 | 9.7 | 4.8 | 12.0 | 4.6 | 8.9 | 49 | 397 | 4% |
| | 15 | 101.0 | 14.6 | 103.7 | 15.7 | 102.4 | 15.0 | 3.6 | 9.7 | 6.2 | 11.8 | 4.9 | 9.0 | 111 | 786 | 8% |
| | 16 | 101.4 | 16.3 | 103.4 | 16.7 | 102.6 | 16.5 | 3.4 | 9.8 | 5.1 | 12.5 | 4.3 | 9.4 | 209 | 1089 | 11% |
| | 17 | 101.9 | 15.7 | 103.2 | 16.3 | 102.8 | 15.9 | 2.7 | 9.0 | 3.6 | 11.8 | 3.2 | 8.4 | 702 | 4796 | 50% |
| | 18 | 99.6 | 15.4 | 102.8 | 18.0 | 101.2 | 16.3 | 1.5 | 8.5 | 4.7 | 11.8 | 2.9 | 8.3 | 10 | 96 | 1% |
| | 19 | 104.1 | 14.6 | 106.7 | 17.3 | 105.6 | 15.0 | 1.9 | 11.5 | 3.4 | 16.4 | 2.5 | 10.8 | 5 | 58 | 1% |
| | 20 | 105.8 | 15.6 | 106.4 | 15.8 | 106.6 | 15.6 | 1.8 | 9.2 | 3.0 | 10.7 | 2.5 | 8.9 | 5 | 80 | 1% |
| | 21 | 94.6 | 17.7 | 89.1 | 19.1 | 92.3 | 18.5 | 1.7 | 9.0 | -.5 | 6.4 | .5 | 6.8 | 2 | 17 | 0% |
| | 22 | 74.0 | | 82.0 | | 76.0 | | 2.0 | | 3.0 | | 2.0 | | | 1 | 0% |
| | 23 | 96.6 | 16.6 | 97.7 | 20.6 | 97.3 | 15.7 | 4.2 | 9.0 | -2.9 | 17.5 | 1.9 | 10.0 | 3 | 14 | 0% |
| | Not known | 96.8 | 15.8 | 98.4 | 16.8 | 97.6 | 16.2 | 2.3 | 9.4 | 3.1 | 12.4 | 2.6 | 9.1 | 830 | 2088 | 22% |

* Number of pupils absent from either rounds of testing

# Project Report 2 - National Numeracy Project - June 1998
## Cohort 2 - Round 2 - Mean Standardised Test Scores
## Summary by LEA

*Year Group: 5*

| | | Written | | Mental | | Overall | | No. of pupils absent | Total no. of pupils |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | | |
| Total | | 100.4 | 15.9 | 101.9 | 16.6 | 101.3 | 16.2 | 1026 | 9611 |
| LEA | 1 | 102.1 | 16.2 | 104.1 | 17.2 | 103.3 | 16.7 | 23 | 705 |
| | 2 | 106.3 | 15.3 | 107.1 | 16.3 | 107.2 | 15.5 | 31 | 614 |
| | 4 | 100.1 | 15.7 | 102.7 | 16.5 | 101.5 | 16.0 | 50 | 867 |
| | 5 | 100.0 | 15.4 | 100.9 | 16.4 | 100.7 | 15.8 | 62 | 1003 |
| | 6 | 99.6 | 16.1 | 101.4 | 17.0 | 100.6 | 16.4 | 54 | 882 |
| | 7 | 99.8 | 16.5 | 101.1 | 17.1 | 100.6 | 16.7 | 17 | 395 |
| | 8 | 100.4 | 15.8 | 102.7 | 16.8 | 101.6 | 16.2 | 29 | 540 |
| | 9 | 103.0 | 15.3 | 103.5 | 14.9 | 103.6 | 15.1 | 56 | 959 |
| | 10 | 98.4 | 15.2 | 99.8 | 16.6 | 99.2 | 15.6 | 27 | 550 |
| | 12 | 96.9 | 16.2 | 99.2 | 16.7 | 98.0 | 16.3 | 63 | 1103 |
| | 13 | 100.3 | 15.6 | 102.0 | 16.6 | 101.3 | 16.0 | 42 | 640 |
| | 14 | 96.1 | 15.1 | 97.8 | 16.9 | 97.0 | 15.9 | 559 | 915 |
| | 15 | 101.3 | 15.9 | 102.8 | 16.0 | 102.3 | 16.0 | 13 | 438 |

# Project Report 3 - National Numeracy Project - June 1998
# Cohort 2 - Round 2 - Mean Progress Standardised Test Scores
# Summary by LEA

*Year Group: 5*

| | | Written Progress Score | | Mental Progress Score | | Overall Progress Score | | No. of pupils absent | Total no. of pupils |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | | |
| Total | | 2.8 | 9.3 | 4.0 | 12.1 | 3.4 | 8.8 | 1962 | 9611 |
| LEA | 1 | 3.0 | 9.8 | 5.6 | 11.8 | 4.2 | 9.1 | 100 | 705 |
| | 2 | 2.5 | 8.9 | 2.2 | 12.8 | 2.6 | 8.6 | 75 | 614 |
| | 4 | 2.1 | 8.8 | 3.5 | 11.4 | 2.8 | 8.3 | 127 | 867 |
| | 5 | 1.8 | 8.5 | 2.2 | 11.8 | 2.2 | 7.8 | 160 | 1003 |
| | 6 | 3.2 | 10.5 | 4.9 | 13.0 | 4.2 | 9.7 | 166 | 882 |
| | 7 | 3.1 | 9.2 | 1.6 | 12.1 | 2.8 | 8.6 | 62 | 395 |
| | 8 | 2.7 | 8.2 | 5.0 | 12.2 | 3.7 | 8.1 | 65 | 540 |
| | 9 | 1.9 | 8.3 | 2.0 | 9.7 | 2.1 | 7.2 | 175 | 959 |
| | 10 | 3.4 | 10.9 | 7.0 | 13.1 | 4.6 | 10.8 | 101 | 550 |
| | 12 | 3.3 | 9.7 | 4.6 | 13.1 | 4.1 | 9.4 | 192 | 1103 |
| | 13 | 5.3 | 10.1 | 6.3 | 12.5 | 6.0 | 9.7 | 96 | 640 |
| | 14 | 2.7 | 8.3 | 4.2 | 10.9 | 3.4 | 7.6 | 586 | 915 |
| | 15 | 1.7 | 8.1 | 3.4 | 10.2 | 2.5 | 7.3 | 57 | 438 |

# National Numeracy Project - June 1998
## Year : 5 Cohort: 2

### Item Facilities Report

| Item No. | Written Test | Mathematical content | | | | Project | National | Project - National Difference |
|---|---|---|---|---|---|---|---|---|
| 35 | Number sequence, involving negative numbers.Rule is 3 less than | Find next number : 13, 10, 7, 4, 1 _ | N | | | 40% | 26% | 14% |
| 41 | Percentage recognition | Quarter of circle is shaded. What % is this ? | % | | | 34% | 21% | 13% |
| 39 | Recognition of a prime number | Ring a prime number less than 50 | N | | | 25% | 16% | 9% |
| 23 | Ring numbers which divide into 36,no remainder | Ring two factors of 36 from 3, 5, 7, 9, 11. | N | | | 51% | 43% | 8% |
| 12 | Multiply a two digit number by 2, crossing tens | 71 x 2 = _ | M | X | | 70% | 64% | 6% |
| 45 | Multiply fractions | ½ x ½ = _ | F | X | | 12% | 7% | 5% |
| 9 | Doubling | Double 17 | M | | | 84% | 81% | 4% |
| 29 | Multiply, in a word problem | 6 mini rolls in pack.How many in 25 packs ? | M | E | | 50% | 47% | 4% |
| 24 | Add decimals | 3.6 + 2.4 = _ | F | | | 58% | 54% | 4% |
| 43 | Approximate multiplication of three digit decimal numbers by rounding | Approximate 4.98 x 11.05 by rounding to whole numbers | G | | | 15% | 12% | 4% |
| 40 | Divide a two digit number by a two digit number,with remainder | 47 ÷ 23 = _ | D | X | | 23% | 20% | 3% |
| 33 | Fraction recognition | 8 penny coins, 6 ringed. What fraction is this ? | F | | | 35% | 31% | 3% |
| 49 | Multiply Decimals | 2.4 x 0.5 = _ | F | X | | 5% | 2% | 3% |
| 48 | Find a percentage of a three digit number | 40% of 300 metres | % | L | | 9% | 6% | 3% |
| 22 | Add three digit numbers,crossing tens and hundreds | 435 + 397 = _ | A | X | | 69% | 67% | 2% |
| 42b | Read a scale | Mark 250 ml on a scale numbered in 0.1 of a litre. | R | | | 47% | 44% | 2% |
| 14 | Place value | Ring number with 7 tens : 7 69 78 107 707 | P | | | 65% | 63% | 2% |
| 47 | Multiply a three digit number by a two digit number | 164 x 57 = _ | M | X | | 7% | 5% | 2% |
| 21 | Order fractions and mixed numbers | Order ½, 1½, 2, ¼, 1¾. | F | | | 47% | 45% | 2% |
| 34 | Multiply a two digit number by 9. | 48 x 9 = _ | M | X | | 32% | 30% | 2% |
| 19 | Add money | £25.62 + £43.55 = __ | A | £ | | 60% | 58% | 2% |
| 32 | Divide a two digit number by 4, with remainder. | 51 ÷ 4 = _ | D | X | | 29% | 27% | 2% |
| 37 | Find width of a rectangle, given perimeter and length | Perimeter is 48cm length is 14cm and width is ? | I | | | 28% | 26% | 2% |
| 26 | Divide two digit numbers by 5, no remainder | 85 ÷ 5 = _ | D | X | | 56% | 54% | 2% |
| 4 | Add weight, in a word problem | Harry weighs 130kg. Brother 60kg Total weight ? | A | K | | 91% | 90% | 1% |
| 46 | Average speed in a word problem | Car travels 120 miles in three hours. Average speed ? | D | T | | 26% | 25% | 1% |
| 11 | Subtract three digit numbers, in a word problem,no crossings | 275 children,143 go to a museum. How many are left | S | E | | 75% | 74% | 1% |
| 28 | Subtract money | £49.19 - £17.25 = _ | S | £ | | 35% | 35% | 0% |
| 16 | Subtract length,not crossing tens, in a word problem | R. jumps 98 cms C. jumps 75 cms , How many more cms ? | S | L | | 71% | 70% | 0% |
| 7 | | 75 - _ = 67 | S | B | | 79% | 79% | 0% |
| 38 | Divide a four digit number by 9, no remainder | 9729 ÷ 9 = _ | D | X | | 18% | 18% | 0% |

# National Numeracy Project - June 1998
## Year : 5 Cohort: 2

### Item Facilities Report

| Item No. | Written Test | Mathematical content | | | | Project | National | Project - National Difference |
|---|---|---|---|---|---|---|---|---|
| 2 | Add single digit numbers,in a word problem | J has 4 comics. gets 5 more. How many altogether ? | A | E | | 98% | 98% | 0% |
| 5 | | _ + 37 = 45 | A | B | | 88% | 88% | 0% |
| 1 | Read a scale (whole numbers) | Scale numbered in 5's from 0 to 15, read 8 | R | | | 90% | 90% | 0% |
| 42a | Approximation from a recipe | Approximate three quarters of 125 grams | G | | | 16% | 17% | 0% |
| 3 | Add four single digit numbers | 7 + 4 + 6 + 2 = _ | A | | | 94% | 95% | -1% |
| 6 | Multiplication of money, in a word problem | Saves 50p each week. How much in 8 weeks ? | M | £ | | 74% | 75% | -1% |
| 27 | Approximate addition of three digit numbers by rounding | Round each part of 102 + 99 to the nearest 100 | G | | | 58% | 59% | -1% |
| 8 | Subtract money, in a word problem | Bananas cost 18p M. has 6p. How much more needed | S | £ | | 88% | 90% | -2% |
| 31 | Find fraction of an area. | Find half of 6cm x 10cm grid. | I | | | 33% | 35% | -2% |
| 13 | Subtract time (minutes), in a word problem | Difference between 1:20 and 2:40 on an analogue clock | S | T | | 71% | 73% | -2% |
| 15 | Estimate to the nearest £5 | Ring amount nearest to £5 : £4.50 £5.45 £4.85 £5.10 £4.00 | G | | | 60% | 61% | -2% |
| 10 | Choose five coins to make a sum of money | Choose five coins to make 37p | A | £ | | 74% | 75% | -2% |
| 44 | Convert pounds to grams | Ring best equivalent to 1lb: 1g 1kg 100g 100kg 500g | G | | | 11% | 13% | -2% |
| 30 | Subtract three digit numbers, crossing tens and hundreds. | 513 - 224 = _ | S | X | | 37% | 39% | -2% |
| 36 | Subtract four digit numbers, involving crossings | 4004 - 2990 = _ | S | X | | 26% | 28% | -2% |
| 17 | Subtract length, crossing tens, in a word problem | Ribbon 94cms. Cut off 39cms. How many cms left ? | S | L | | 55% | 57% | -3% |
| 25 | Add fractions | ½ + ¼ = _ | F | X | | 41% | 44% | -3% |
| 20 | Read a pictogram,symbol representing 2 cars | Interpret total number represented | H | | | 45% | 48% | -3% |
| 18 | Order decimal numbers, or 2 decimal places | Order 3.71, 3.17, 31.7, 7.13, 37.1 | P | F | | 66% | 70% | -4% |

## National Numeracy Project - June 1998
## Year : 5 Cohort: 2

### Item Facilities Report

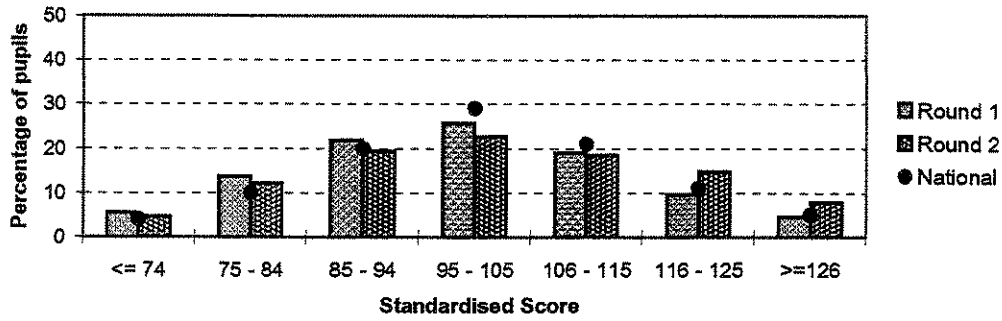
| Item No. | Mental Test | Mathematical content | | | | Project | National | Project - National Difference |
|---|---|---|---|---|---|---|---|---|
| 23 | 'Square root' | Square root of 81 | N | | | 31% | 17% | 14% |
| 17 | 'Divide by' 7 | Divide 49 by 7 | D | | | 48% | 37% | 10% |
| 26 | Writing a fraction as a decimal | Three quarters as a decimal. | F | | | 16% | 6% | 10% |
| 22 | 'Divide by 100' with a whole number answer | 4000 divide by 100 | D | | | 27% | 20% | 8% |
| 12 | What number added to .....? two digit numbers,without crossing tens | What added to 44 gives 69 ? | S | E | | 45% | 38% | 8% |
| 30 | 'Cubed' | Two cubed | N | | | 13% | 7% | 7% |
| 24 | 'Share equally among' 4, no remainder | Share 92 equally among 4 | D | | | 18% | 11% | 7% |
| 19 | 'Write to the nearest thousand' a four digit number | Write 3498 to the nearest 1000 | G | | | 39% | 33% | 6% |
| 7 | 'Write in figures' four digit numbers | Write in figures 1072 | P | | | 77% | 72% | 6% |
| 20 | Multiplication of money, in a word problem. | T shirt costs £3.95.Cost of two ? | A | L | | 36% | 31% | 5% |
| 10 | 'Times' by 6 | Eight times six | M | | | 53% | 48% | 5% |
| 27 | Multiply' a two digit number by 3, crossing tens | Multiply 48 by 3 | M | | | 14% | 9% | 5% |
| 5 | 'One half of ' | One half of 28 | D | | | 76% | 72% | 4% |
| 21 | 'Less than' two digit numbers, without crossing tens | 25 less than 89 | S | | | 32% | 28% | 4% |
| 14 | Multiply a single digit number by 9 | Seven multiplied by nine | M | | | 51% | 47% | 4% |
| 25 | 'Remainder' when dividing by 6 | Remainder when 77 divided by 6 | D | | | 19% | 15% | 4% |
| 16 | Division by 4 of length, in a word problem, no remainder | String 84cms. Cut into four. Length of pieces? | D | L | | 48% | 44% | 4% |
| 29 | '15 percent of' | 15% of 200 | % | | | 8% | 5% | 3% |
| 13 | 'Subtract' using two digit numbers,without crossing tens | Subtract 25 from 95 | S | | | 45% | 42% | 3% |
| 28 | Multiplication of 2 two digit numbers | 18 multiplied by 25 | M | | | 5% | 3% | 2% |
| 18 | 'Difference' | Write two numbers with a difference of 12 | S | O | | 29% | 27% | 2% |
| 11 | 'Sum' of two digit plus single digit number,crossing tens | Sum of 58 and 9 | A | | | 64% | 62% | 2% |
| 8 | 'Total' of 4 single digit numbers,pairs of numbers making ten | Total of 8,3,7and 2 | A | | | 76% | 75% | 1% |
| 9 | 'Minus' two digit minus single digit number,crossing tens | 66 minus 8 | S | | | 57% | 57% | 1% |
| 6 | 'Total' of two digit numbers | Total of 21 and 19 | A | | | 75% | 75% | 0% |
| 4 | Addition of money, in a word problem | Tina has 36p,Rob has 10p.How much now ? | A | | | 92% | 93% | -1% |
| 1 | 'Take away' 10 from teens number | Twelve take away ten | S | | | 94% | 95% | -1% |
| 2 | 'Add ' using single digit numbers | Add eight to seven | A | | | 90% | 92% | -2% |
| 3 | Multiplication by 7 in a word problem | Box holds 7 biscuits. 7 boxes hold ? | M | | | 91% | 93% | -2% |
| 15 | I subtract .....from a number,and get.... what is the number ? | Subtract 8 and get 27. What's the number ? | A | E | | 45% | 48% | -3% |

# National Numeracy Project - June 1998

**Year : 5 Cohort : 2**

| Project Level | No. of Round 1 Pupils | 7679 |
|---|---|---|
| | No. of Round 2 Pupils | 8561 |

**Chart 1 : Overall Test Score distribution**




*The above chart shows the percentage of pupils in the project in the different age-standardised score bands for the first and second round of testing and compared with the National standardised score distribution. Similar distributions for the written and mental tests are shown below.*

**Chart 2: Written Test Score distribution**

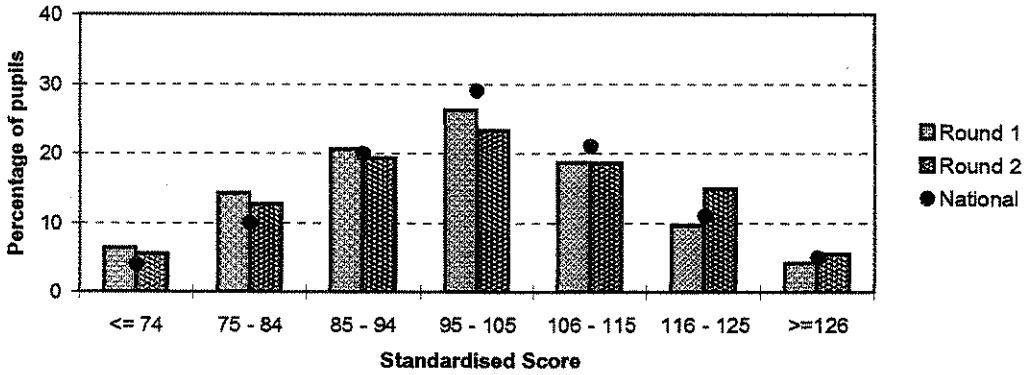
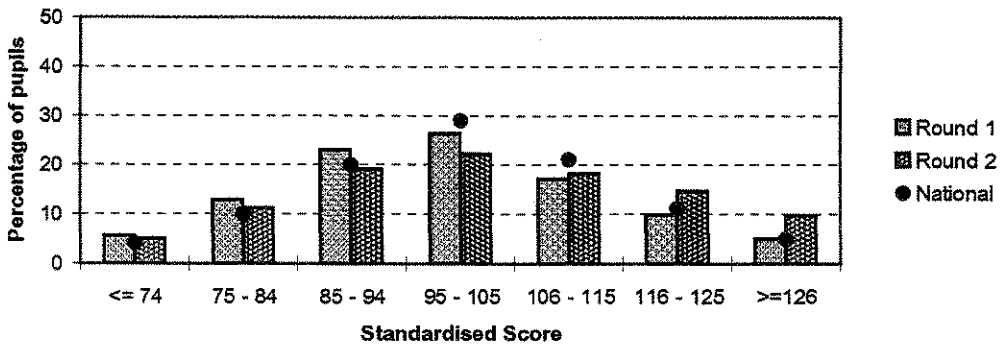



**Chart 3 : Mental Test Score distribution**

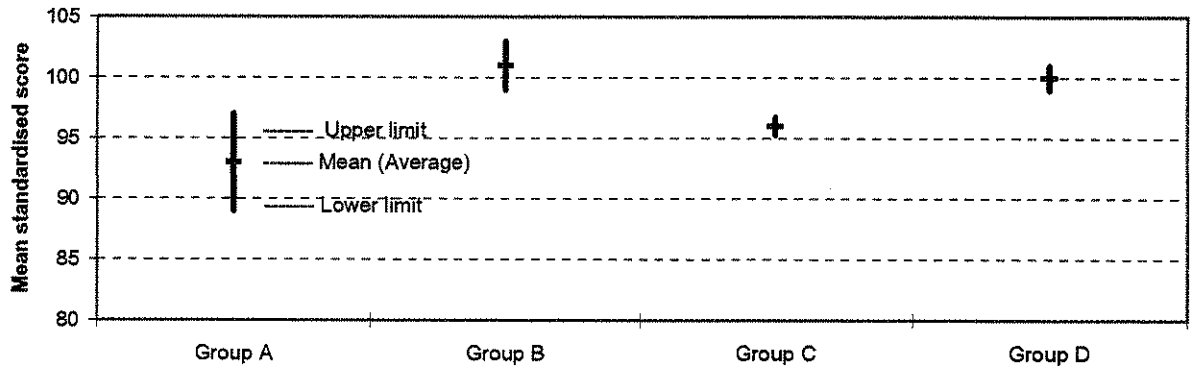


*(continued)* **National Numeracy Project - June 1998**

**Year : 5 Cohort : 2**

| **Project Level** | **No. of Round 1 Pupils** | **7679** |
|---|---|---|
| | **No. of Round 2 Pupils** | **8561** |

**Example Chart : Mean scores**




*The above example shows, for each of four groups, the mean (average) standardised score and an estimate of the "95% confidence band" for each of these mean scores. Such a band means that we can be 95% certain that the mean score lies between the upper and lower limits of the vertical line, as annotated for Group A. If the top of a vertical line is lower than the bottom of another vertical line, then it is likely that there is a real difference between the two groups. If on the other hand the vertical lines overlap, then it is likely that any difference between the two scores is not significant. In this example, the difference between Groups A and B is likely to be real but the difference between Groups B and D is not significant.*

**Chart 4 : Mean scores for second round of testing**

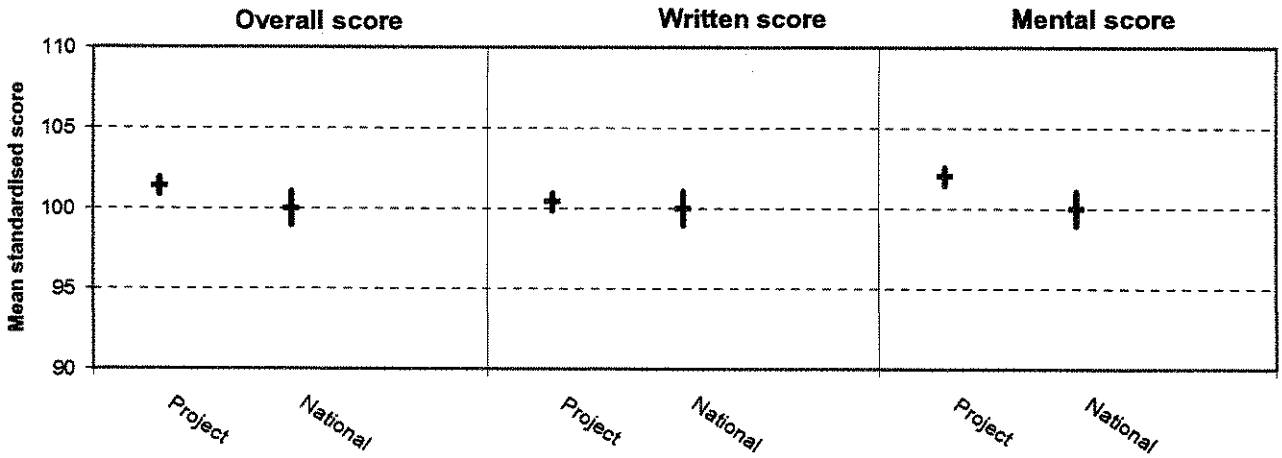



*Chart 4 shows the mean (average) score for the project as a whole and compares it with the National Standardisation sample.*

*(continued)* **National Numeracy Project - June 1998**

**Year : 5 Cohort : 2**

| **Project Level** | **No. of Round 1 Pupils** | **7679** |
|---|---|---|
| | **No. of Round 2 Pupils** | **8561** |

**Chart 5 : Mean project scores for second round of testing**

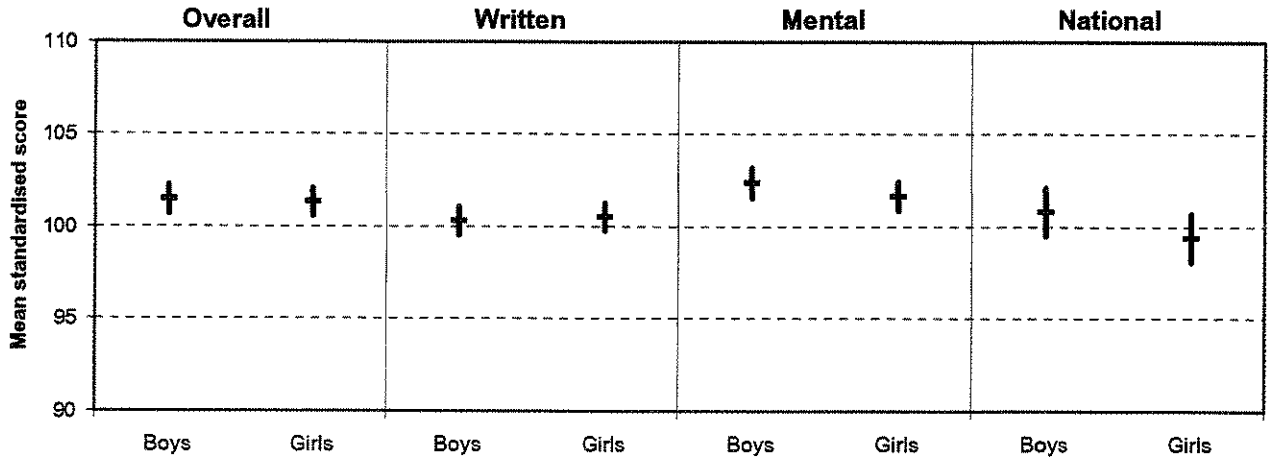



*Chart 5 shows the mean (average) score in the project separately for boys and girls and compares it with the National Standardisation sample.*

**Chart 6 : Mean Standardised scores by term of Birth**

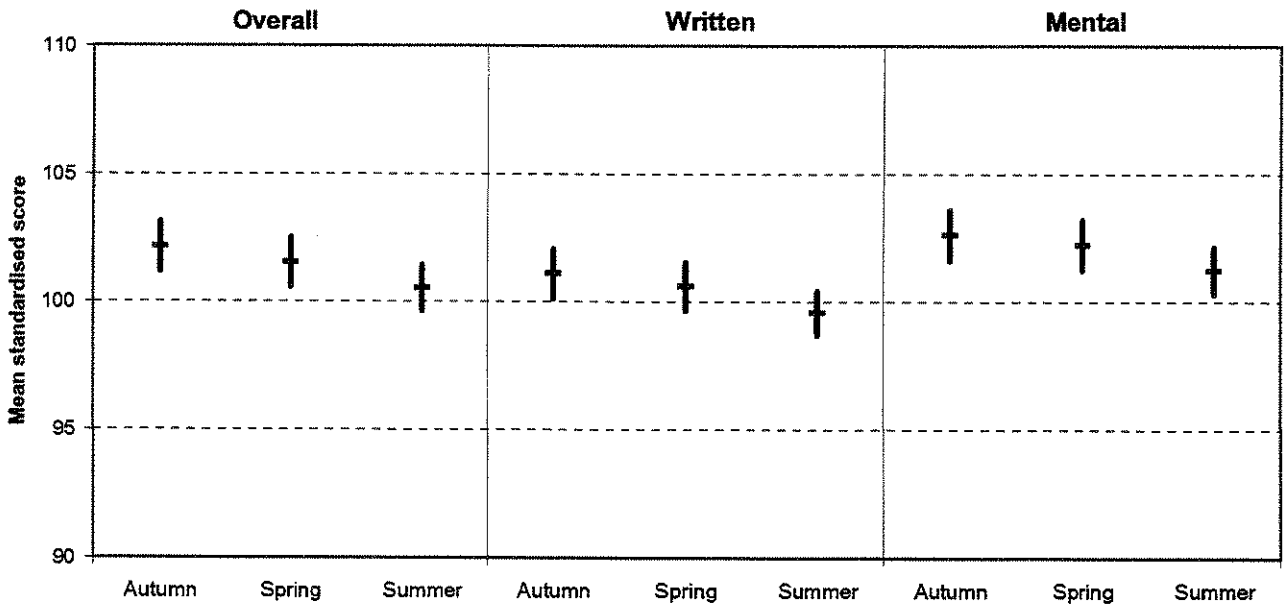



*Chart 6 shows the comparison of the mean (average) score of pupils born in the Autumn, Spring and Summer.*

*(continued)*

## National Numeracy Project - June 1998

**Year : 5** **Cohort : 2**

| Project Level | No. of Round 1 Pupils | 7679 |
|---|---|---|
| | No. of Round 2 Pupils | 8561 |

**Chart 7 : Mean Progress scores**

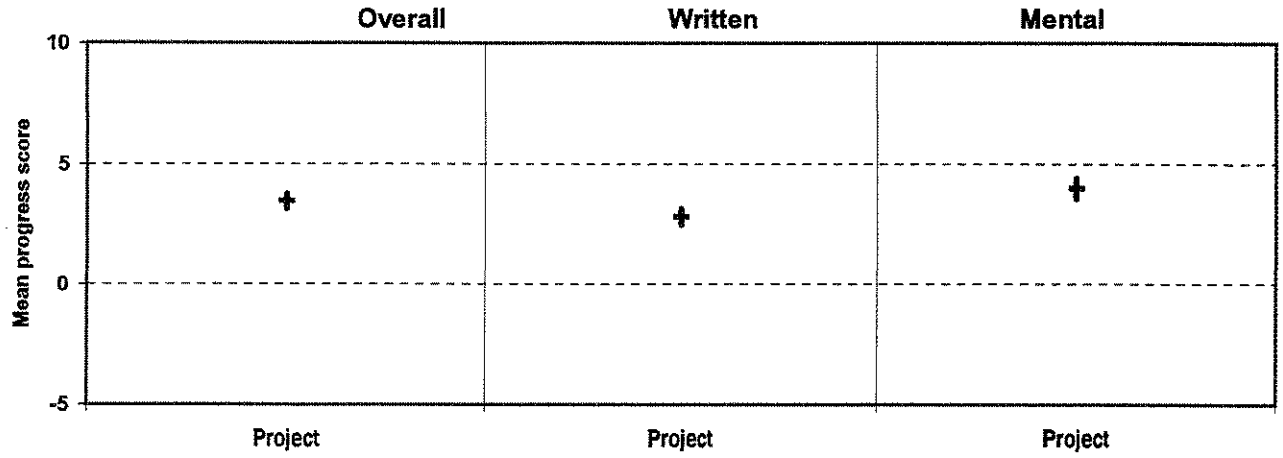



*Chart 7 shows the average progress made by the pupils between the first and second rounds of testing. Progress is measured by the difference in the standardised scores between both rounds of testing.*
*Any line which lies completely above the horizontal zero line indicates significant progress from Round1 to Round 2.*

# Cohort 3 – Year 1

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| Chart 1 | Round 1 Overall Test Score distribution |
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| Chart 3 | Round 1 Mental Test Score distribution |
| Chart 4 | Mean scores for first round of testing |
| Chart 5 | Mean scores for Boys and Girls |
| Chart 6 | Mean scores by term of birth |

# Project Report 1 - National Numeracy Project - June 1998
## Cohort 3 - Year 1 - Mean Entry Standardised Test Scores
## Summary by background data- ALL LEAs

| | | Written | | Mental | | Overall | | No. of pupils absent | Total no. of pupils | Percent of pupils |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | | | |
| Total | | 98.5 | 14.5 | 96.6 | 16.1 | 98.4 | 14.4 | 630 | 11521 | 100% |
| Gender | Boys | 97.8 | 14.8 | 95.6 | 16.6 | 97.7 | 14.8 | 329 | 5881 | 51% |
| | Girls | 99.1 | 14.1 | 97.6 | 15.5 | 99.2 | 13.9 | 301 | 5639 | 49% |
| | Not known | 131.0 | | 128.0 | | 131.0 | | | 1 | 0% |
| Ethnic group | White | 99.6 | 14.6 | 98.1 | 16.1 | 99.7 | 14.5 | 443 | 7847 | 68% |
| | Black Caribbean | 98.5 | 14.2 | 96.0 | 15.8 | 98.2 | 13.9 | 16 | 438 | 4% |
| | Black African | 98.3 | 14.5 | 95.3 | 16.0 | 97.9 | 14.3 | 15 | 351 | 3% |
| | Black Other | 99.5 | 13.8 | 97.5 | 15.7 | 99.4 | 13.6 | 8 | 211 | 2% |
| | Indian | 98.3 | 13.5 | 95.9 | 14.5 | 97.9 | 13.2 | 23 | 548 | 5% |
| | Pakistani | 91.4 | 12.5 | 87.8 | 14.5 | 90.6 | 12.2 | 43 | 939 | 8% |
| | Bangladeshi | 95.7 | 14.1 | 90.6 | 15.2 | 94.3 | 13.5 | 42 | 482 | 4% |
| | Other | 97.8 | 14.0 | 96.3 | 15.5 | 97.8 | 13.9 | 37 | 677 | 6% |
| | Not known | 94.6 | 16.3 | 92.1 | 14.9 | 94.1 | 14.4 | 3 | 28 | 0% |
| Receives Free School Meals? | Yes | 94.5 | 13.7 | 92.5 | 15.5 | 94.3 | 13.5 | 239 | 3673 | 32% |
| | No | 100.5 | 14.5 | 98.6 | 16.0 | 100.4 | 14.4 | 367 | 7542 | 65% |
| | Not known | 96.3 | 13.7 | 94.7 | 15.1 | 96.4 | 13.4 | 24 | 306 | 3% |
| Special Educational Needs level | None | 101.4 | 13.9 | 99.6 | 15.3 | 101.4 | 13.8 | 418 | 8797 | 76% |
| | Stage 1 | 89.3 | 10.3 | 87.3 | 13.2 | 89.0 | 10.2 | 92 | 1185 | 10% |
| | Stage 2 | 87.1 | 9.7 | 85.8 | 13.5 | 87.2 | 9.7 | 70 | 943 | 8% |
| | Stage 3 | 85.0 | 11.1 | 81.8 | 13.3 | 84.6 | 10.8 | 20 | 281 | 2% |
| | Stage 4 or above | 82.0 | 12.1 | 79.0 | 13.2 | 81.7 | 11.7 | 20 | 167 | 1% |
| | Not known | 106.6 | 15.0 | 102.6 | 18.5 | 106.3 | 15.2 | 10 | 148 | 1% |
| Stage of Learning English | New to English | 87.5 | 13.9 | 84.1 | 15.6 | 87.0 | 13.6 | 29 | 284 | 2% |
| | Becoming familiar with English | 91.7 | 11.9 | 88.0 | 13.4 | 90.8 | 11.3 | 58 | 976 | 8% |
| | Becoming confident with English | 96.4 | 13.2 | 93.0 | 15.2 | 95.7 | 13.1 | 32 | 722 | 6% |
| | Very fluent in most contexts | 100.9 | 13.6 | 97.9 | 14.9 | 100.4 | 13.4 | 21 | 590 | 5% |
| | English first language | 99.6 | 14.5 | 98.1 | 16.0 | 99.7 | 14.4 | 486 | 8922 | 77% |
| | Not known | 92.3 | 15.1 | 95.1 | 18.8 | 93.8 | 15.7 | 4 | 27 | 0% |
| Received Nursery Education? | Yes | 98.9 | 14.4 | 97.1 | 15.8 | 98.8 | 14.3 | 406 | 7895 | 69% |
| | No | 98.8 | 14.7 | 97.3 | 16.5 | 98.9 | 14.8 | 91 | 1887 | 16% |
| | Not known | 96.1 | 14.4 | 93.4 | 16.3 | 95.8 | 14.2 | 133 | 1739 | 15% |
| No. of terms Primary Education | 1 term or less | 89.9 | 14.3 | 89.6 | 16.5 | 90.3 | 14.4 | 16 | 153 | 1% |
| | 2 | 93.5 | 13.1 | 91.2 | 15.8 | 93.2 | 13.2 | 21 | 342 | 3% |
| | 3 | 98.0 | 14.2 | 95.9 | 16.6 | 98.0 | 14.3 | 69 | 1345 | 12% |
| | 4 | 98.0 | 14.2 | 96.1 | 16.0 | 98.0 | 14.2 | 116 | 1971 | 17% |
| | 5 | 99.2 | 14.4 | 97.6 | 15.8 | 99.2 | 14.3 | 317 | 6458 | 56% |
| | 6 or more terms | 98.4 | 15.4 | 95.0 | 16.7 | 97.8 | 15.1 | 91 | 1252 | 11% |

# Project Report 2 - National Numeracy Project - June 1998
# Cohort 3 - Mean Entry Standardised Test Scores
# Summary by LEA

*Year Group: 1*

| | | Written | | Mental | | Overall | | No. of pupils absent | Total no. of pupils |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | | |
| Total | | 98.5 | 14.5 | 96.6 | 16.1 | 98.4 | 14.4 | 630 | 11521 |
| LEA | 1 | 102.3 | 14.7 | 98.8 | 16.1 | 101.8 | 14.2 | 29 | 729 |
| | 2 | 99.4 | 14.2 | 97.9 | 16.0 | 99.4 | 14.3 | 43 | 838 |
| | 3 | 97.3 | 14.0 | 97.2 | 15.5 | 97.7 | 13.9 | 10 | 337 |
| | 4 | 101.8 | 15.4 | 100.9 | 17.4 | 102.2 | 15.6 | 41 | 724 |
| | 5 | 101.3 | 14.5 | 99.2 | 16.3 | 101.3 | 14.6 | 60 | 1103 |
| | 6 | 98.4 | 14.2 | 96.0 | 15.9 | 98.1 | 14.2 | 30 | 520 |
| | 7 | 95.4 | 13.5 | 91.7 | 16.2 | 94.7 | 13.7 | 18 | 387 |
| | 8 | 95.5 | 12.4 | 93.4 | 13.4 | 95.1 | 12.0 | 45 | 498 |
| | 9 | 96.5 | 14.5 | 94.3 | 15.2 | 96.2 | 13.8 | 40 | 705 |
| | 10 | 98.9 | 14.8 | 93.4 | 16.5 | 97.5 | 14.7 | 38 | 520 |
| | 11 | 99.5 | 15.0 | 96.7 | 16.7 | 99.1 | 15.1 | 52 | 935 |
| | 12 | 97.3 | 14.2 | 96.4 | 15.5 | 97.6 | 14.1 | 91 | 1805 |
| | 13 | 96.3 | 14.0 | 94.5 | 15.7 | 96.3 | 13.9 | 74 | 1167 |
| | 14 | 94.9 | 13.7 | 91.8 | 15.0 | 94.3 | 13.3 | 29 | 721 |
| | 15 | 101.1 | 13.9 | 104.0 | 14.3 | 102.9 | 13.6 | 30 | 532 |

# National Numeracy Project - June 1998
## Year : 1 Cohort: 3

### Item Facilities Report

| Item No. | Written Test | Mathematical content | | | | Project | National | Project - National Difference |
|---|---|---|---|---|---|---|---|---|
| A7 | Reading the time (hours) | Read 8 o'clock on an analogue clock | T | R | | 72% | 65% | 7% |
| A13 | 'Odd number' recognition | Ring odd numbers in range 18 to 25 | N | | | 25% | 18% | 7% |
| A12 | Divide money in a word problem | 5 biscuits cost 25p. How much is one biscuit? | D | £ | | 28% | 22% | 5% |
| A6 | Add 2p and 1p coins | 2p+2p+2p+1p | A | £ | | 60% | 56% | 4% |
| A11 | Putting single and two digit numbers in order | Order 73, 47, 6, 12, and 55 | P | | | 42% | 38% | 4% |
| B3 | Add single digit to two digit number | 44 + 5 = _ | A | X | | 44% | 41% | 4% |
| B2 | Add single digit number to teens number | 12 + 7 = _ | A | X | | 47% | 44% | 3% |
| B11 | Subtract single digit number from two digit number, without crossing tens | 59 - 6 = _ | S | X | | 14% | 12% | 3% |
| A15 | Number sequence - add 4 | Fill in missing number: 4 8 _ 16 20 | N | | | 19% | 16% | 3% |
| A16 | Doubling | Double 20 | M | | | 22% | 21% | 1% |
| A17 | Subtract 10 from a two digit number | 10 less than 78 | S | | | 9% | 7% | 1% |
| B6 | Subtract ten from a teens number | 16 - 10 = _ | S | X | | 32% | 31% | 1% |
| B8 | | 17 - _ = 13 | S | B | | 22% | 21% | 1% |
| B7 | Subtract single digit from teens number crossing ten | 15 - 6 = _ | S | X | | 30% | 29% | 1% |
| B4 | | 60 ÷ _ = 68 | A | B | | 27% | 27% | 1% |
| B10 | | _ + 9 = 15 | A | B | | 21% | 21% | 0% |
| A19 | Place value | Ring hundreds in 1295 | P | | | 8% | 8% | 0% |
| B12 | | _ - 10 = 61 | S | B | | 5% | 5% | 0% |
| B9 | Add 3 single digit numbers | 3 + 4 + 8 = _ | A | X | | 39% | 39% | 0% |
| A2 | Counting - total less than 10 | Count 8 triangles | A | | | 95% | 95% | 0% |
| A3 | Number line with numbers less than 10 | Fill in numbers on number line 1 to 7 | N | | | 92% | 92% | 0% |
| B13 | Multiply two digit number by 3 without carrying | 13 x 3 = _ | M | X | | 3% | 4% | -1% |
| A4 | Counting two groups - total less than 10 | 4 dogs and 5 cats. How many altogether? | A | E | | 91% | 93% | -1% |
| A8 | Subtract single digit numbers in a word problem | Subtract 6 from 8 | S | | | 31% | 33% | -1% |
| A1 | Counting - total less than 10 | Count 5 stars | A | | | 96% | 97% | -1% |
| B14 | Divide two digit number by 4 (Table fact) | 20 ÷ 4 = _ | D | X | | 5% | 6% | -1% |
| B1 | Add single digit numbers | 4 + 2 = _ | A | X | | 85% | 86% | -2% |
| A18 | Addition of weight | 50g and 5g. How many grams altogether? | A | K | | 21% | 22% | -2% |
| B5 | Subtract single digit numbers | 8 - 3 = _ | S | X | | 61% | 63% | -2% |
| A5 | Comparing heights | Ring the tallest person | L | | | 91% | 95% | -3% |
| A14 | Add two single digit numbers in a word problem | 7 people on bus and 8 more get on. How many now? | A | E | | 37% | 41% | -4% |
| A10 | Multiplication | 5 lots of 2 | M | | | 23% | 28% | -5% |
| A9 | Multiplication in a word problem | 4 x 3 | M | E | | 35% | 42% | -7% |

## National Numeracy Project - June 1998
## Year : 1 Cohort: 3

### Item Facilities Report

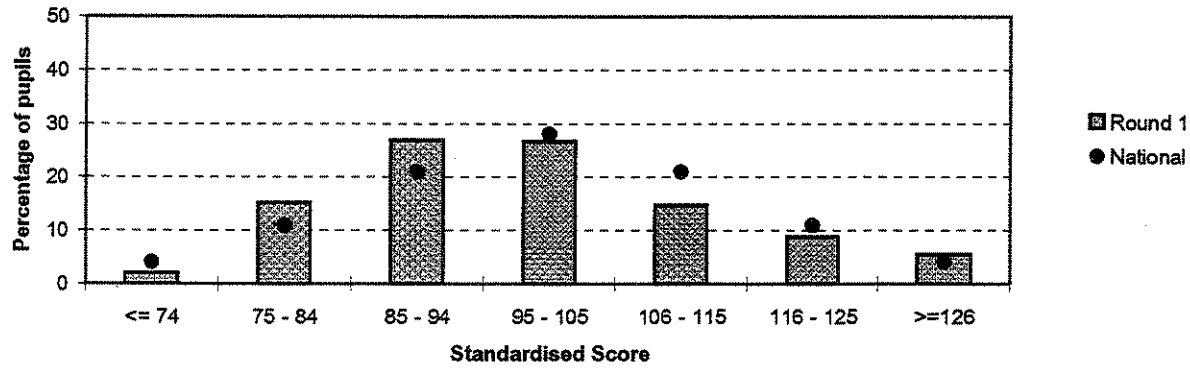
| Item No. | Mental Test | Mathematical content | | | | Project | National | Project - National Difference |
|---|---|---|---|---|---|---|---|---|
| 11 | Addition of time (hours) in word problem | A clock says 4 o'clock. What time in 3 hours? | A | T | | 22% | 19% | 3% |
| 8 | 'I am thinking of a number', single digit | I add 4. My answer is 9. What did I start with? | A | B | | 16% | 14% | 2% |
| 12 | 'Add', using two multiples of 10 | Add 60 and 20 | A | | | 15% | 13% | 2% |
| 10 | 'Write two numbers which add up to...' | Write two numbers which add up to 14 | A | O | | 20% | 19% | 1% |
| 17 | 'Take from', using multiples of ten | Take 30 from 80 | S | | | 8% | 7% | 1% |
| 6 | 'Plus', using 2 single digit numbers | 4 plus 6 | A | | | 47% | 47% | 0% |
| 3 | 'Take away', using single digit numbers | Seven take away five | S | | | 61% | 61% | 0% |
| 19 | 'More than' | 45 is more than 7 - How many more? | S | | | 1% | 1% | 0% |
| 16 | 'Take away' single digit number from teens number | 12 take away 4 | S | | | 30% | 31% | -1% |
| 7 | 'Taken away', using two digit numbers | What number taken away from 16 leaves 10? | S | B | | 17% | 18% | -1% |
| 18 | 'Share equally by 4', in a word problem | 12 apples. Four children share them equally. How many each? | D | E | | 7% | 8% | -1% |
| 4 | Subtract money less than 10p in a word problem | Jill has 8p. She gives 3p to her brother. How much has she left? | S | £ | | 54% | 55% | -2% |
| 13 | 'Share between' 2, in word problem | Share 10 sweets between 2 | D | E | | 27% | 29% | -2% |
| 14 | 'Less than', using single digit numbers | 8 less than 9 | S | | | 15% | 17% | -2% |
| 15 | 'Times', 2 and 5 | 2 times 5 | M | | | 19% | 21% | -2% |
| 2 | 'Add', using single digit numbers | Three add two | A | | | 74% | 77% | -4% |
| 5 | 'Total', using 3 single digit numbers | What is the total of 2 add 4 add 1? | A | | | 50% | 54% | -4% |
| 9 | 'Write in figures', two digit number | Write in figures the number 67 | P | | | 51% | 56% | -5% |
| 1 | Practice question | One add one | A | | | | | |

# National Numeracy Project - June 1998
## Year : 1 Cohort : 3

**Project Level**

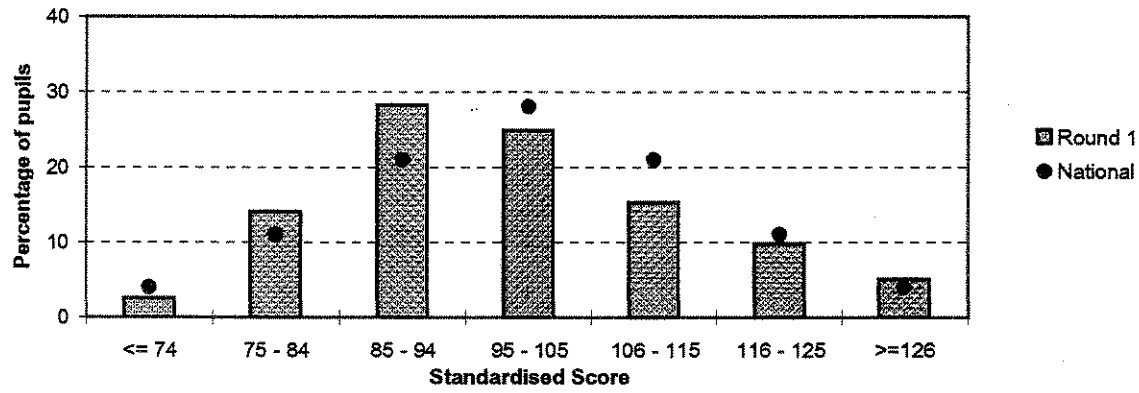
**No. of Round 1 Pupils 10889**

### Chart 1 : Overall Test Score distribution

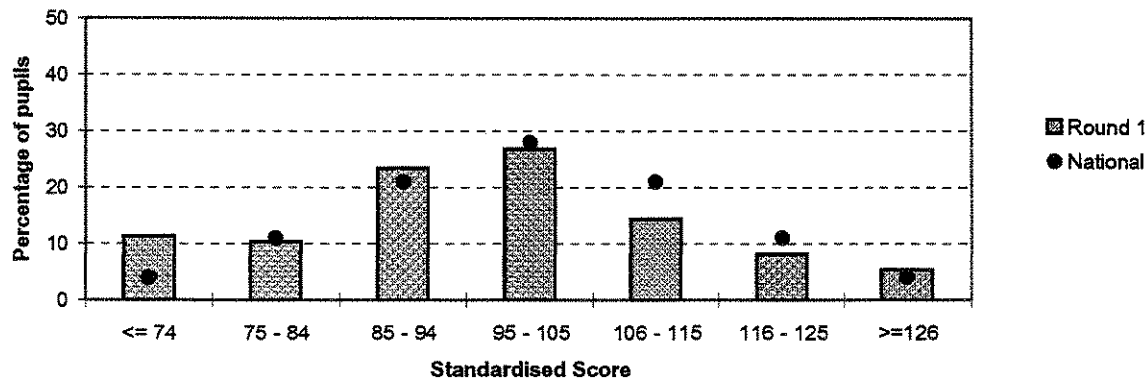



*The above chart shows the percentage of pupils in the project in the different age-standardised score bands for the first round of testing and compared with the National standardised score distribution. Similar distributions for the written and mental tests are shown below.*

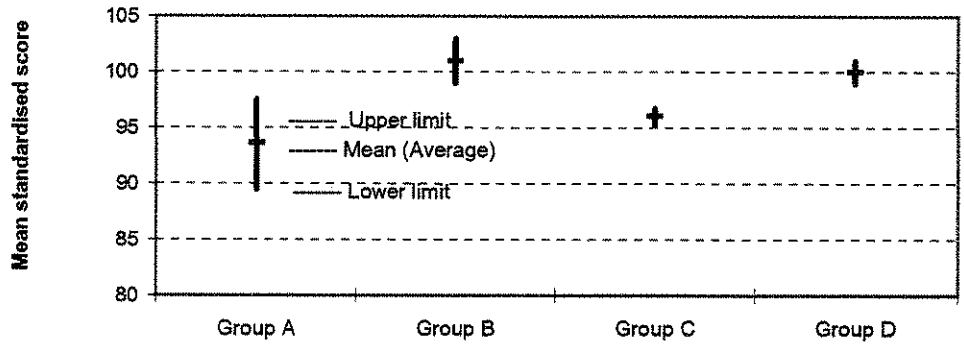
### Chart 2: Written Test Score distribution




### Chart 3 : Mental Test Score distribution



**Example Chart : Mean scores**




*The above example shows, for each of four groups, the mean (average) standardised score and an estimate of the "95% confidence band" for each of these mean scores. Such a band means that we can be 95% certain that the mean score lies between the upper and lower limits of the vertical line, as annotated for Group A. If the top of a vertical line is lower than the bottom of another vertical line, then it is likely that there is a real difference between the two groups. If on the other hand the vertical lines overlap, then it is likely that any difference between the two scores is not significant. In this example, the difference between Groups A and B is likely to be real but the difference between Groups B and D is not significant.*

**Chart 4 : Mean scores for first round of testing**

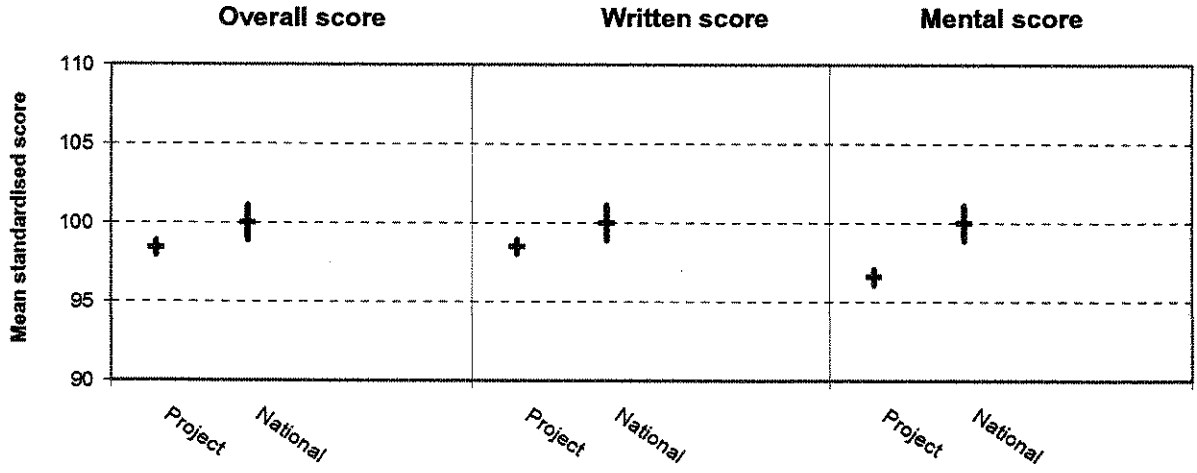



*Chart 4 shows the mean (average) score for the project and compares it with the pupils in the schools taking part in the Project as a whole, and the National Standardisation sample.*

*(continued)* **National Numeracy Project - June 1998**
**Year : 1 Cohort : 3**

**Project Level**

**No. of Round 1 Pupils 10889**

**Chart 5 : Mean project scores for first round of testing**

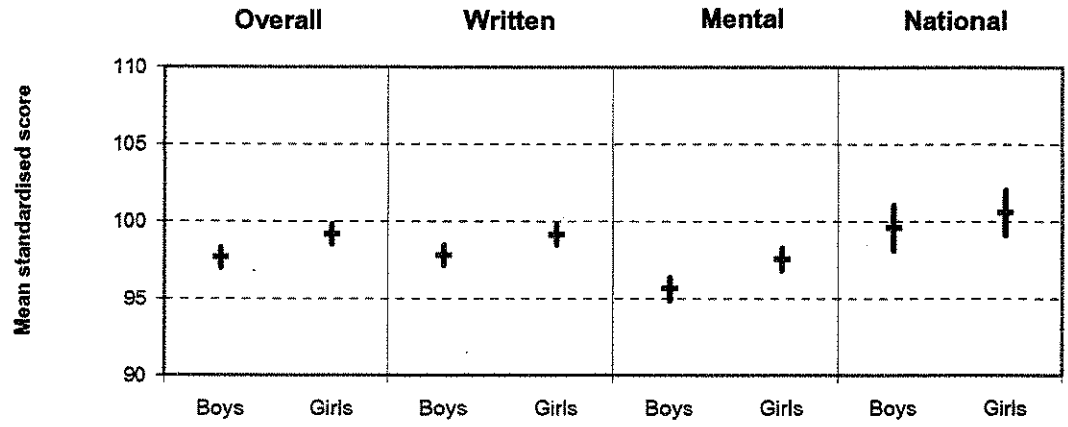



*Chart 5 shows the mean (average) score in the project separately for boys and girls and compares it with the National Standardisation sample.*

**Chart 6 : Mean Standardised scores by term of Birth**

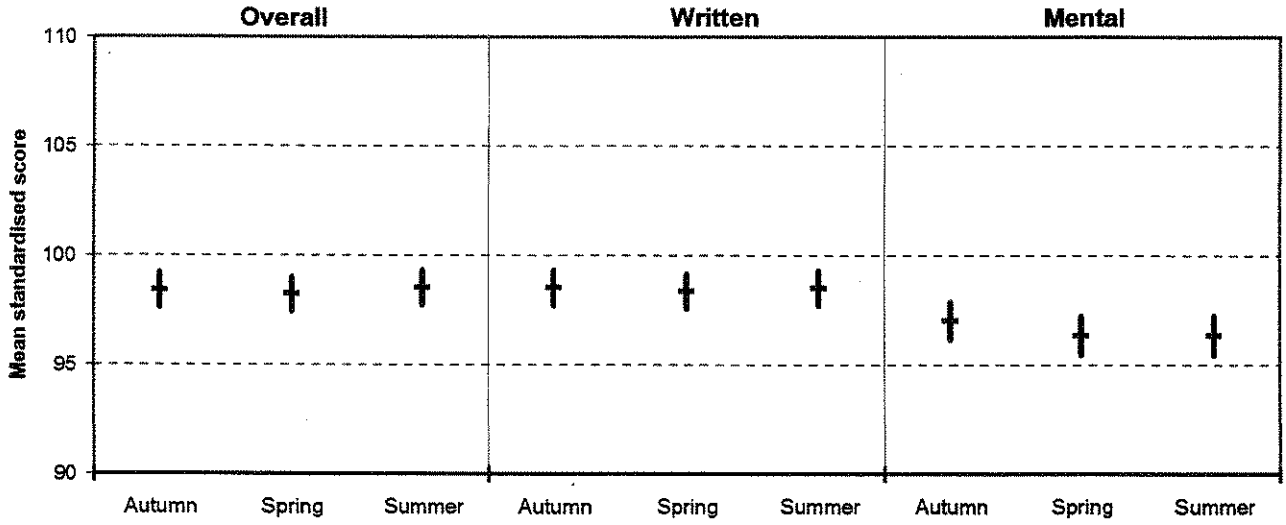



*Chart 6 shows the comparison of the mean (average) score of pupils born in the Autumn, spring and summer.*

# Cohort 3 – Year 2

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| Project Report 1 | Standardised scores by background data for project |
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| Chart 2 | Round 1 Written Test Score distribution |
| Chart 3 | Round 1 Mental Test Score distribution |
| Chart 4 | Mean scores for first round of testing |
| Chart 5 | Mean scores for Boys and Girls |
| Chart 6 | Mean scores by term of birth |

# Project Report 1 - National Numeracy Project - June 1998
## Cohort 3 - Year 2 - Mean Entry Standardised Test Scores
## Summary by background data- ALL LEAs

| | | Written | | Mental | | Overall | | No. of pupils absent | Total no. of pupils | Percent of pupils |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | | | |
| Total | | 99.7 | 15.1 | 100.1 | 16.4 | 100.6 | 15.1 | 581 | 11443 | 100% |
| Gender | Boys | 99.6 | 15.6 | 100.5 | 17.0 | 100.7 | 15.6 | 307 | 5800 | 51% |
| | Girls | 99.9 | 14.5 | 99.7 | 15.8 | 100.5 | 14.5 | 273 | 5637 | 49% |
| | Not known | 106.0 | 18.7 | 101.4 | 16.7 | 107.0 | 19.1 | 1 | 6 | 0% |
| Ethnic group | White | 100.6 | 15.1 | 101.2 | 16.4 | 101.6 | 15.2 | 397 | 7766 | 68% |
| | Black Caribbean | 99.8 | 14.3 | 100.5 | 16.0 | 100.8 | 14.3 | 26 | 527 | 5% |
| | Black African | 98.2 | 16.2 | 97.9 | 16.6 | 98.8 | 15.8 | 11 | 317 | 3% |
| | Black Other | 100.4 | 14.8 | 101.3 | 16.5 | 101.6 | 14.7 | 2 | 167 | 1% |
| | Indian | 99.9 | 14.4 | 98.8 | 15.9 | 100.2 | 14.3 | 22 | 545 | 5% |
| | Pakistani | 93.7 | 14.0 | 94.2 | 15.5 | 94.5 | 13.8 | 42 | 851 | 7% |
| | Bangladeshi | 97.5 | 13.7 | 96.3 | 15.0 | 97.6 | 13.4 | 38 | 518 | 5% |
| | Other | 100.2 | 15.6 | 99.7 | 16.8 | 100.7 | 15.5 | 35 | 674 | 6% |
| | Not known | 95.3 | 13.8 | 96.3 | 16.9 | 96.3 | 14.6 | 8 | 78 | 1% |
| Receives Free School Meals? | Yes | 95.7 | 14.7 | 96.3 | 16.2 | 96.6 | 14.7 | 228 | 3806 | 33% |
| | No | 102.0 | 14.8 | 102.3 | 16.1 | 102.9 | 14.8 | 335 | 7296 | 64% |
| | Not known | 95.2 | 14.7 | 95.6 | 15.6 | 95.9 | 14.6 | 18 | 341 | 3% |
| Special Educational Needs level | None | 103.7 | 13.6 | 103.9 | 15.2 | 104.5 | 13.7 | 398 | 8574 | 75% |
| | Stage 1 | 90.7 | 12.2 | 91.7 | 14.0 | 91.5 | 12.0 | 57 | 1087 | 9% |
| | Stage 2 | 86.4 | 11.5 | 87.3 | 13.3 | 87.2 | 11.1 | 63 | 976 | 9% |
| | Stage 3 | 83.9 | 12.5 | 84.7 | 13.5 | 84.8 | 11.8 | 32 | 459 | 4% |
| | Stage 4 or above | 79.6 | 13.5 | 80.6 | 13.5 | 80.5 | 12.9 | 24 | 213 | 2% |
| | Not known | 99.2 | 13.7 | 101.4 | 16.6 | 100.8 | 14.3 | 7 | 134 | 1% |
| Stage of Learning English | New to English | 86.6 | 13.4 | 86.1 | 13.3 | 86.7 | 12.1 | 14 | 187 | 2% |
| | Becoming familiar with English | 91.1 | 13.1 | 90.9 | 14.3 | 91.5 | 12.6 | 43 | 782 | 7% |
| | Becoming confident with English | 98.2 | 13.2 | 97.9 | 14.8 | 98.7 | 13.0 | 44 | 879 | 8% |
| | Very fluent in most contexts | 102.2 | 14.3 | 102.4 | 15.8 | 103.0 | 14.3 | 32 | 683 | 6% |
| | English first language | 100.7 | 15.1 | 101.3 | 16.4 | 101.7 | 15.2 | 438 | 8888 | 78% |
| | Not known | 96.2 | 17.6 | 91.8 | 16.4 | 94.8 | 16.4 | 10 | 24 | 0% |
| Received Nursery Education? | Yes | 100.3 | 14.9 | 100.6 | 16.3 | 101.1 | 14.9 | 339 | 7200 | 63% |
| | No | 100.4 | 15.2 | 100.8 | 16.7 | 101.3 | 15.3 | 93 | 2004 | 18% |
| | Not known | 97.4 | 15.2 | 97.9 | 16.2 | 98.2 | 15.1 | 149 | 2239 | 20% |
| No. of terms Primary Education | 4 terms or less | 94.4 | 15.1 | 94.8 | 16.4 | 95.2 | 15.0 | 30 | 430 | 4% |
| | 5 | 97.4 | 14.9 | 96.8 | 16.0 | 97.8 | 14.7 | 17 | 450 | 4% |
| | 6 | 99.1 | 14.9 | 97.8 | 16.7 | 99.4 | 14.9 | 55 | 1151 | 10% |
| | 7 | 99.7 | 15.0 | 99.0 | 16.6 | 100.2 | 15.0 | 116 | 1810 | 16% |
| | 8 | 100.8 | 15.1 | 101.8 | 16.2 | 101.9 | 15.1 | 276 | 6281 | 55% |
| | 9 or more terms | 97.7 | 14.6 | 98.5 | 15.8 | 98.7 | 14.6 | 87 | 1321 | 12% |
| KS1 Teacher Assessment level- Number | | 97.7 | 15.4 | 98.3 | 16.9 | 98.6 | 15.5 | 85 | 912 | 8% |
| | 1 | 84.1 | 9.9 | 84.9 | 11.0 | 84.8 | 8.9 | 103 | 1791 | 16% |
| | 2 | 100.7 | 11.6 | 101.0 | 13.7 | 101.5 | 11.7 | 316 | 6976 | 61% |
| | 3 | 118.2 | 10.0 | 118.4 | 11.5 | 119.5 | 9.7 | 53 | 1522 | 13% |
| | W | 75.3 | 7.1 | 76.2 | 9.7 | 76.5 | 6.9 | 24 | 242 | 2% |
| KS1 Mathematics Task/Test level | | 92.0 | 16.7 | 92.3 | 17.3 | 92.7 | 16.2 | 52 | 347 | 3% |
| | 1 | 84.0 | 9.4 | 85.4 | 11.1 | 84.9 | 8.7 | 103 | 1743 | 15% |
| | 2 | 99.6 | 12.7 | 99.5 | 12.1 | 100.3 | 11.9 | 5 | 113 | 1% |
| | 2A | 108.8 | 9.7 | 109.4 | 12.1 | 110.1 | 9.7 | 76 | 1819 | 16% |
| | 2B | 101.7 | 9.7 | 102.1 | 12.3 | 102.6 | 9.8 | 91 | 2612 | 23% |
| | 2C | 93.7 | 9.7 | 93.4 | 11.8 | 94.0 | 9.3 | 159 | 2833 | 25% |
| | 3 | 118.6 | 9.9 | 118.9 | 11.5 | 120.0 | 9.7 | 60 | 1652 | 14% |
| | A | 95.9 | 13.3 | 98.2 | 15.5 | 97.4 | 13.9 | 6 | 30 | 0% |
| | W | 75.6 | 7.4 | 77.2 | 9.5 | 76.9 | 6.7 | 29 | 294 | 3% |

# Project Report 2 - National Numeracy Project - June 1998
# Cohort 3 - Mean Entry Standardised Test Scores
# Summary by LEA

*Year Group: 2*

| | | Written | | Mental | | Overall | | No. of pupils absent | Total no. of pupils |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | | |
| Total | | 99.7 | 15.1 | 100.1 | 16.4 | 100.6 | 15.1 | 581 | 11443 |
| LEA | 1 | 102.6 | 15.5 | 101.8 | 17.0 | 103.1 | 15.4 | 39 | 727 |
| | 2 | 101.0 | 15.1 | 103.7 | 15.7 | 102.7 | 15.0 | 35 | 832 |
| | 3 | 100.0 | 14.7 | 99.5 | 15.8 | 100.4 | 14.9 | 15 | 340 |
| | 4 | 98.9 | 14.9 | 100.1 | 16.0 | 100.0 | 14.9 | 33 | 700 |
| | 5 | 101.2 | 15.2 | 101.3 | 17.0 | 102.0 | 15.4 | 48 | 1132 |
| | 6 | 101.9 | 14.9 | 101.8 | 16.2 | 102.7 | 14.6 | 46 | 506 |
| | 7 | 97.1 | 14.1 | 97.3 | 15.8 | 97.8 | 14.3 | 20 | 423 |
| | 8 | 97.3 | 14.1 | 96.8 | 16.0 | 97.8 | 14.1 | 36 | 449 |
| | 9 | 97.6 | 15.0 | 98.0 | 16.0 | 98.4 | 15.0 | 32 | 726 |
| | 10 | 98.3 | 14.0 | 97.1 | 15.5 | 98.4 | 13.7 | 32 | 551 |
| | 11 | 100.2 | 15.4 | 99.5 | 16.5 | 100.7 | 15.2 | 42 | 915 |
| | 12 | 100.3 | 15.6 | 101.2 | 16.7 | 101.4 | 15.7 | 93 | 1852 |
| | 13 | 97.4 | 14.9 | 97.7 | 16.3 | 98.2 | 15.0 | 59 | 1126 |
| | 14 | 97.8 | 14.2 | 98.3 | 15.4 | 98.7 | 14.4 | 29 | 702 |
| | 15 | 103.2 | 14.1 | 105.5 | 15.2 | 104.8 | 14.3 | 22 | 462 |

# National Numeracy Project - June 1998
## Year : 2 Cohort: 3

### Item Facilities Report

| Item No. | Written Test | Mathematical content | | | | Project | National | Project - National Difference |
|---|---|---|---|---|---|---|---|---|
| 17 | Doubling | Double 8 | M | | | 47% | 40% | 7% |
| 13 | Subtract single digit from two digit number without crossing tens | 87 - 4 = _ | S | X | | 54% | 49% | 5% |
| 7 | Subtract single digit numbers | 8 - 3 = _ | S | X | | 83% | 78% | 5% |
| 34 | Place value | Ring hundreds in 1295 | P | | | 19% | 14% | 5% |
| 11 | | _ + _ = 28 | A | O | | 67% | 63% | 5% |
| 19 | | 30 - _ = 22 | S | B | | 42% | 38% | 4% |
| 20 | Add a single to a two digit number, crossing tens | 54 + 9 = _ | A | X | | 60% | 56% | 4% |
| 14 | 'Odd number' recognition | Ring odd numbers in range 18 to 25 | N | | | 58% | 54% | 4% |
| 28 | | 20 x _ = 80 | M | B | | 12% | 8% | 4% |
| 36 | Round to the nearest hundred | 357 to the nearest hundred | G | | | 16% | 12% | 4% |
| 29 | | 46 ÷ _ = 23 | D | B | | 9% | 6% | 4% |
| 24 | Number sequence - add 7 | Next number in sequence 14, 21, 28, 35, _ | N | | | 26% | 23% | 3% |
| 9 | Add 10 to a two digit number | 83 + 10 = _ | A | X | | 66% | 63% | 3% |
| 23 | | 43 - _ = 37 | S | B | | 34% | 31% | 3% |
| 16 | Add 3 single digit numbers | 5 + 2 + 9 = _ | A | X | | 74% | 71% | 3% |
| 26 | Multiply by 6 (square numbers - table fact) | 6 x 6 = _ | M | X | | 22% | 20% | 2% |
| 27 | | _ - 9 = 7 | S | B | | 18% | 15% | 2% |
| 30b | Subtract heights, data handling, read table | How much taller? (Heights in cm) | S | H | | 14% | 12% | 2% |
| 22 | Read a scale (whole numbers) | Scale numbered in 5s from 0 to 25, read 17 | R | | | 33% | 31% | 2% |
| 10 | Add a single digit to a teens number, not crossing 20 | 12 + 7 = _ | A | X | | 75% | 73% | 2% |
| 30a | Total weight, data handling, read table | Total weight of three children (in kg) | A | H | | 12% | 10% | 2% |
| 25 | Multiply two digit number by 3, no carrying | 32 x 3 = _ | M | X | | 12% | 10% | 2% |
| 37 | Divide three digit by two digit number, in a word problem | How many 25s in 450? | D | E | | 3% | 2% | 1% |
| 4 | Add single digit numbers | 3 + 6 = _ | A | X | | 91% | 90% | 1% |
| 32 | Divide 2 digit number by 3, with remainder | 67 ÷ 3 = _ | D | X | | 1% | 1% | 1% |
| 31 | Subtract 3 digit number from 200 | 200 - 184 = _ | S | X | | 6% | 6% | 1% |
| 12 | Add numbers less than 20, in a word problem | 7 people on a bus. 8 more get on. How many now? | A | E | | 66% | 65% | 0% |
| 33 | Convert centimetres to millimetres | Millimetres in 11 centimetres | M | L | | 3% | 3% | 0% |
| 3 | Counting with numbers less than 20 | Count 12 birds | C | | | 93% | 93% | 0% |
| 1 | Counting two groups, total less than 10 | 4 dogs and 5 cats. How many animals altogether? | A | E | | 97% | 97% | 0% |
| 35 | Volume of rectangular block | Count cubes. 2cm x 3cm x 4cm. | V | | | 4% | 4% | 0% |
| 5 | Add 5p, 2p and 1p coins | 2p + 5p + 1p + 1p = _ | A | £ | | 85% | 85% | 0% |
| 15 | Addition of weight | 50g and 5g. How many grams altogether? | A | K | | 49% | 50% | -1% |
| 18 | Addition of time (hours) | Read 10:30 on a digital clock. Time is one hour later? | A | T | | 34% | 35% | -1% |
| 6 | Comparing heights | Draw a ring around the shortest person | L | | | 91% | 92% | -1% |
| 2 | Number line with numbers less than 10 (decreasing) | Fill in missing numbers on number line from 9 to 4 | N | | | 88% | 89% | -1% |

## National Numeracy Project - June 1998
## Year : 2 Cohort: 3

| Item Facilities Report | | | | | | | | Project - National |
|---|---|---|---|---|---|---|---|---|
| 8 | Multiplication in a word problem | 3 x 4 = _ | M | E | | 53% | 57% | -3% |
| 21 | Fraction recognition | Recognise a shaded quarter of a circle | F | | | 23% | 26% | -4% |

# National Numeracy Project - June 1998
## Year : 2 Cohort: 3

### Item Facilities Report

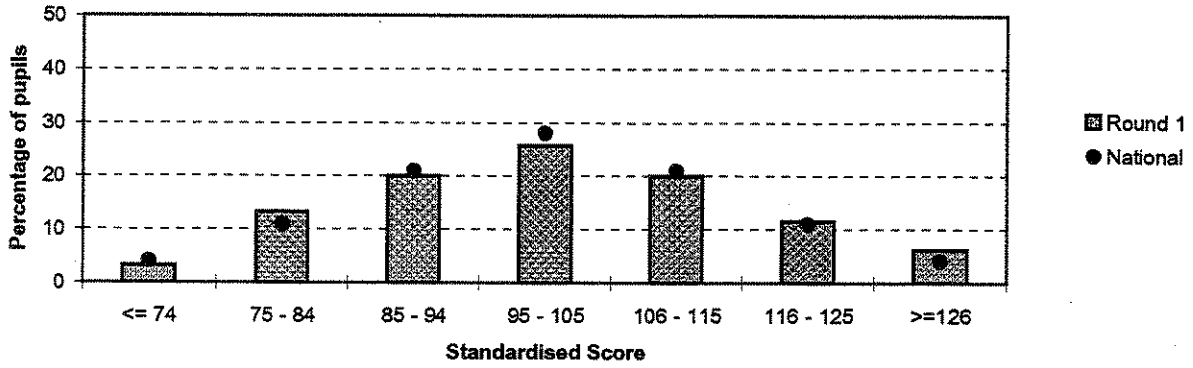
| Item No. | Mental Test | Mathematical content | | | | Project | National | Project - National Difference |
|---|---|---|---|---|---|---|---|---|
| 8 | 'Take' single digit from two digit number | Take 6 from 18 | S | | | 38% | 30% | 8% |
| 11 | 'Write two numbers which add up to...' | Write two numbers which add up to 14 | A | O | | 57% | 49% | 8% |
| 6 | 'Altogether' in word problem, multiples of 100 | Paula runs 200 metres and then another 300 metres. How far does she run altogether? | A | L | | 47% | 40% | 7% |
| 18 | 'Difference between', teens and single digit number | Difference between 16 and 7 | S | | | 18% | 13% | 6% |
| 4 | 'Times', 2 and 5 | 2 times 5 | M | | | 52% | 47% | 5% |
| 14 | 'Divide by', 2 | Divide 16 by 2 | D | | | 16% | 12% | 4% |
| 3 | Addition of money, in a word problem | Mark has a 20 pence coin. Vijay gives him 6p. How much has he now? | A | £ | | 66% | 61% | 4% |
| 12 | 'Write in figures', three digit number | Write in figures the number 506 | P | | | 38% | 34% | 4% |
| 19 | 'Add', two digit numbers, crossing tens | 28 add 43 | A | | | 10% | 6% | 4% |
| 7 | 'Share equally among', in a word problem | 60p is shared equally among 6 children. How much each? | D | £ | | 36% | 34% | 3% |
| 15 | 'Subtract', 30 from two digit number | 56 subtract 30 | S | | | 12% | 10% | 2% |
| 16 | 'Write to the nearest ten', -rounding to nearest ten | Write 93 to the nearest ten | G | | | 14% | 12% | 2% |
| 5 | 'How many altogether?', two digit number and 10 | How many are 39 and 10 altogether | A | | | 49% | 47% | 2% |
| 9 | Addition of time (hours) in a word problem | Clock says four o'clock. Time in 3 hours? | A | T | | 44% | 43% | 1% |
| 17 | Multiply money, in a word problem | One toy costs £1.50. How much do three cost? | M | £ | | 8% | 7% | 1% |
| 13 | 'I am thinking of a number', two digit numbers | I subtract 20. Answer is 70. What number did I start with? | S | B | | 10% | 9% | 1% |
| 1 | 'Take away', using single digit numbers | 7 take away 5 | S | | | 76% | 75% | 1% |
| 2 | 'Add', using 3 single digit numbers | 5 add 3 add 2 | A | | | 77% | 76% | 1% |
| 10 | 'Take away', 10 from teens number | What number taken away from 16 leaves 10? | S | | | 42% | 42% | 0% |

# National Numeracy Project - June 1998
## Year : 2 Cohort : 3

**Project Level**

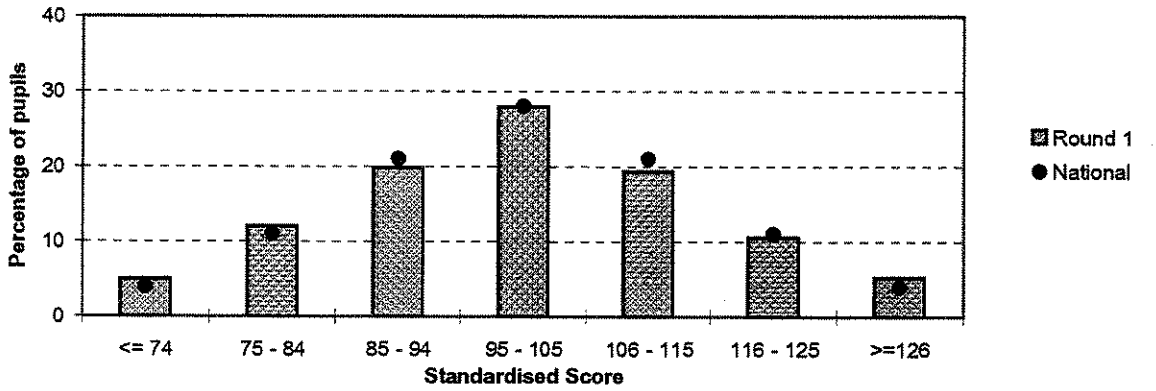
**No. of Round 1 Pupils 10860**

### Chart 1 : Overall Test Score distribution

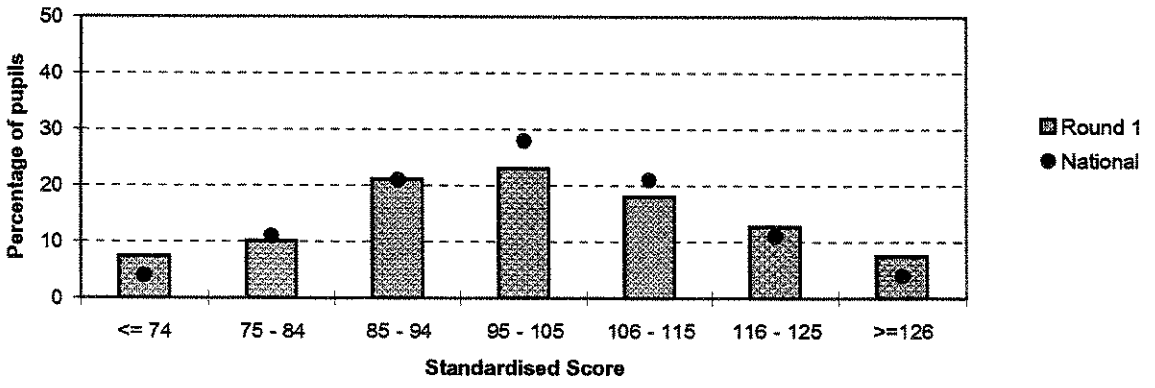



*The above chart shows the percentage of pupils in the project in the different age-standardised score bands for the first round of testing and compared with the National standardised score distribution. Similar distributions for the written and mental tests are shown below.*

### Chart 2: Written Test Score distribution




### Chart 3 : Mental Test Score distribution

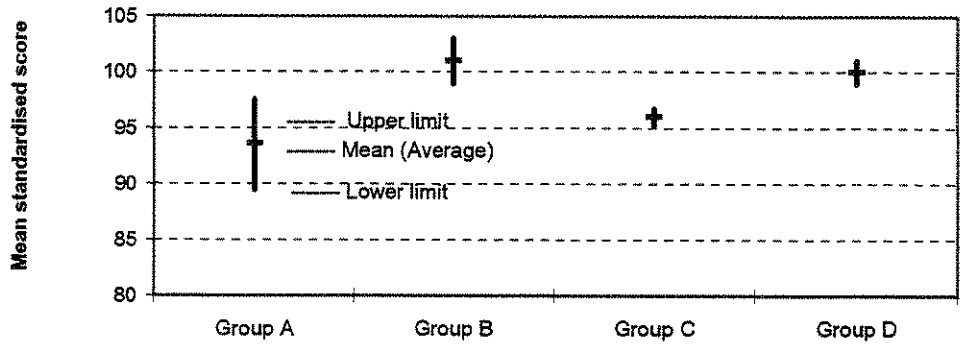


*(continued)* **National Numeracy Project - June 1998**
**Year : 2 Cohort : 3**

**Project Level**

**No. of Round 1 Pupils 10860**

**Example Chart : Mean scores**




*The above example shows, for each of four groups, the mean (average) standardised score and an estimate of the "95% confidence band" for each of these mean scores. Such a band means that we can be 95% certain that the mean score lies between the upper and lower limits of the vertical line, as annotated for Group A. If the top of a vertical line is lower than the bottom of another vertical line, then it is likely that there is a real difference between the two groups. If on the other hand the vertical lines overlap, then it is likely that any difference between the two scores is not significant. In this example, the difference between Groups A and B is likely to be real but the difference between Groups B and D is not significant.*

**Chart 4 : Mean scores for first round of testing**

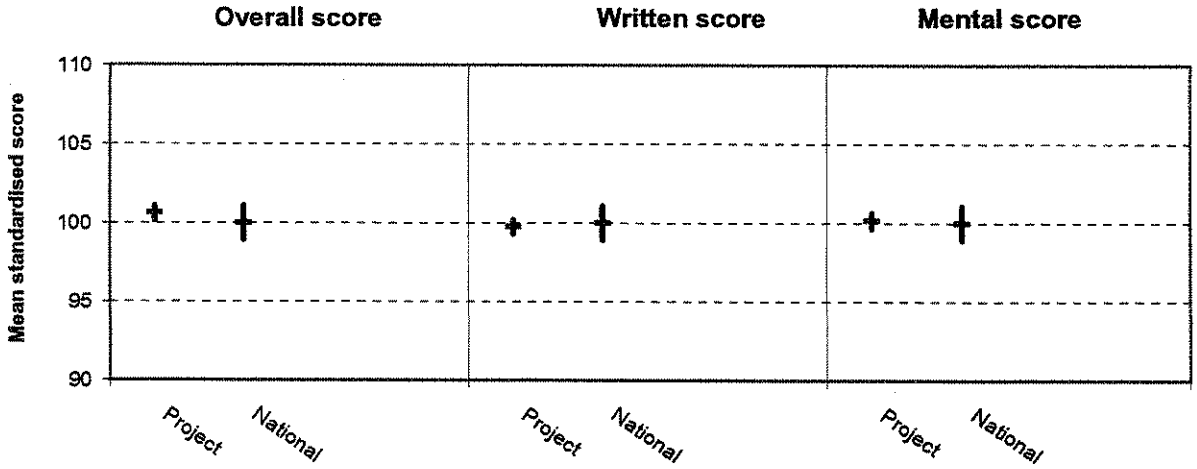



*Chart 4 shows the mean (average) score for the project and compares it with the pupils in the schools taking part in the Project as a whole, and the National Standardisation sample.*

*(continued)* **National Numeracy Project - June 1998**
**Year : 2 Cohort : 3**

**Project Level**

**No. of Round 1 Pupils 10860**

**Chart 5 : Mean project scores for first round of testing**

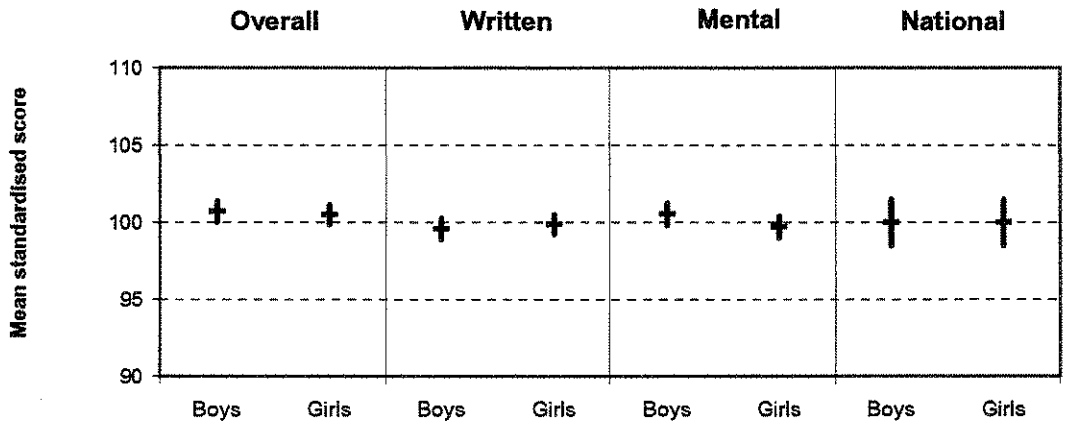



*Chart 5 shows the mean (average) score in the project separately for boys and girls and compares it with the National Standardisation sample.*

**Chart 6 : Mean Standardised scores by term of Birth**

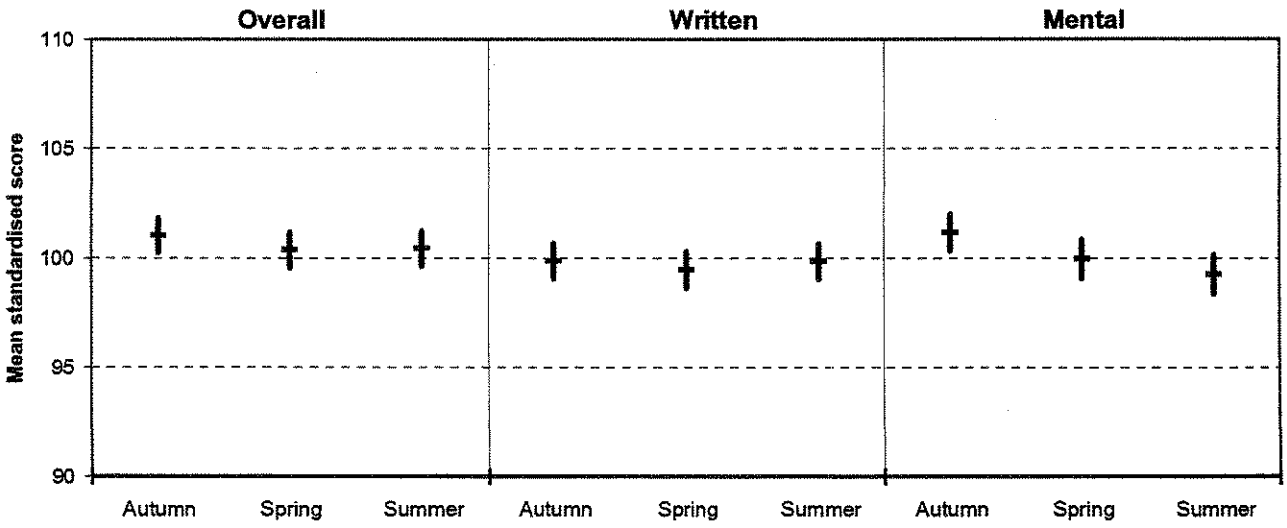



*Chart 6 shows the comparison of the mean (average) score of pupils born in the Autumn, spring and summer.*

# Cohort 3 – Year 4

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**Project Report 1 - National Numeracy Project - June 1998**
**Cohort 3 - Year 4 - Mean Entry Standardised Test Scores**
**Summary by background data- ALL LEAs**

| | | Written | | Mental | | Overall | | No. of pupils absent | Total no. of pupils | Percent of pupils |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | | | |
| Total | | 100.0 | 15.5 | 100.3 | 16.0 | 100.4 | 15.4 | 521 | 10788 | 100% |
| Gender | Boys | 100.2 | 15.8 | 100.7 | 16.5 | 100.7 | 15.9 | 261 | 5550 | 51% |
| | Girls | 99.8 | 15.1 | 100.0 | 15.4 | 100.1 | 15.0 | 259 | 5236 | 49% |
| | Not known | 111.0 | | 112.0 | | 112.0 | | 1 | 2 | 0% |
| Ethnic group | White | 101.2 | 15.2 | 101.2 | 15.8 | 101.6 | 15.2 | 362 | 7341 | 68% |
| | Black Caribbean | 97.7 | 15.5 | 99.7 | 15.6 | 98.6 | 15.2 | 30 | 544 | 5% |
| | Black African | 98.0 | 15.6 | 100.2 | 16.3 | 99.0 | 15.7 | 12 | 298 | 3% |
| | Black Other | 97.5 | 13.8 | 98.7 | 15.5 | 98.1 | 14.1 | 3 | 154 | 1% |
| | Indian | 100.2 | 15.9 | 102.1 | 16.7 | 101.2 | 16.0 | 20 | 524 | 5% |
| | Pakistani | 94.8 | 15.6 | 96.2 | 16.2 | 95.4 | 15.6 | 33 | 767 | 7% |
| | Bangladeshi | 93.9 | 14.2 | 93.9 | 14.4 | 94.0 | 13.9 | 25 | 443 | 4% |
| | Other | 100.1 | 16.3 | 100.4 | 17.1 | 100.5 | 16.4 | 29 | 623 | 6% |
| | Not known | 94.5 | 13.4 | 95.3 | 13.3 | 94.9 | 13.2 | 7 | 94 | 1% |
| Receives Free School Meals? | Yes | 94.6 | 14.6 | 95.2 | 15.3 | 94.9 | 14.6 | 231 | 3514 | 33% |
| | No | 102.6 | 15.2 | 102.8 | 15.7 | 103.1 | 15.1 | 283 | 7148 | 66% |
| | Not known | 99.0 | 17.5 | 98.3 | 17.7 | 99.0 | 17.1 | 7 | 126 | 1% |
| Special Educational Needs level | None | 104.4 | 13.8 | 104.5 | 14.8 | 104.9 | 13.8 | 338 | 7894 | 73% |
| | Stage 1 | 90.9 | 12.4 | 91.9 | 12.5 | 91.2 | 11.9 | 61 | 1052 | 10% |
| | Stage 2 | 87.2 | 12.5 | 89.1 | 13.0 | 87.7 | 12.2 | 55 | 1019 | 9% |
| | Stage 3 | 83.5 | 12.6 | 84.3 | 12.6 | 83.5 | 12.2 | 35 | 417 | 4% |
| | Stage 4 or above | 79.4 | 12.3 | 79.9 | 11.8 | 79.2 | 11.8 | 23 | 289 | 3% |
| | Not known | 97.3 | 13.9 | 98.6 | 14.8 | 98.0 | 14.0 | 9 | 117 | 1% |
| Stage of Learning English | New to English | 82.0 | 14.6 | 81.7 | 13.3 | 81.7 | 13.7 | 11 | 112 | 1% |
| | Becoming familiar with English | 87.2 | 12.7 | 88.5 | 13.2 | 87.5 | 12.5 | 27 | 505 | 5% |
| | Becoming confident with English | 95.9 | 13.9 | 97.2 | 14.5 | 96.5 | 13.8 | 40 | 878 | 8% |
| | Very fluent in most contexts | 103.2 | 14.9 | 104.1 | 15.8 | 103.9 | 14.9 | 29 | 826 | 8% |
| | English first language | 101.1 | 15.3 | 101.3 | 15.8 | 101.5 | 15.2 | 412 | 8420 | 78% |
| | Not known | 90.1 | 16.2 | 90.0 | 15.3 | 90.1 | 16.1 | 2 | 47 | 0% |
| No. of terms Primary Education | 10 terms or less | 92.9 | 17.4 | 94.7 | 17.4 | 93.7 | 17.3 | 20 | 260 | 2% |
| | 11 | 96.7 | 14.5 | 97.6 | 16.2 | 97.3 | 14.8 | 12 | 275 | 3% |
| | 12 | 100.1 | 15.5 | 99.6 | 16.3 | 100.1 | 15.4 | 23 | 521 | 5% |
| | 13 | 100.3 | 15.0 | 100.5 | 15.5 | 100.6 | 15.0 | 53 | 1180 | 11% |
| | 14 | 101.3 | 15.3 | 102.0 | 15.8 | 101.9 | 15.2 | 239 | 5448 | 51% |
| | 15 or more terms | 98.4 | 15.7 | 98.2 | 16.0 | 98.6 | 15.5 | 174 | 3104 | 29% |
| KS1 Teacher Assessment level- Number | | 97.7 | 15.6 | 98.0 | 16.0 | 98.0 | 15.6 | 214 | 3520 | 33% |
| | 1 | 86.3 | 11.2 | 87.7 | 11.2 | 86.6 | 10.6 | 78 | 1487 | 14% |
| | 2 | 103.4 | 12.7 | 103.6 | 13.8 | 103.9 | 12.6 | 201 | 4905 | 45% |
| | 3 | 118.1 | 10.1 | 117.9 | 12.5 | 118.9 | 10.2 | 19 | 761 | 7% |
| | W | 75.3 | 8.5 | 77.2 | 10.0 | 75.5 | 8.2 | 9 | 115 | 1% |
| KS1 Mathematics Task/Test level | | 96.3 | 15.7 | 96.4 | 16.0 | 96.5 | 15.6 | 147 | 2180 | 20% |
| | 1 | 85.9 | 10.8 | 87.7 | 11.4 | 86.3 | 10.4 | 77 | 1506 | 14% |
| | 2 | 100.8 | 12.3 | 101.7 | 13.8 | 101.4 | 12.2 | 38 | 742 | 7% |
| | 2A | 108.4 | 11.3 | 108.2 | 13.0 | 108.9 | 11.3 | 62 | 1671 | 15% |
| | 2B | 102.2 | 11.1 | 102.3 | 12.5 | 102.6 | 10.9 | 54 | 1521 | 14% |
| | 2C | 95.5 | 11.2 | 96.2 | 12.2 | 95.9 | 10.9 | 79 | 1572 | 15% |
| | 3 | 116.7 | 10.8 | 116.0 | 13.0 | 117.3 | 10.9 | 45 | 1363 | 13% |
| | A | | | | | | | 1 | 1 | 0% |
| | W | 76.7 | 8.2 | 78.3 | 9.2 | 76.8 | 7.8 | 18 | 232 | 2% |

# Project Report 2 - National Numeracy Project - June 1998
## Cohort 3 - Mean Entry Standardised Test Scores
## Summary by LEA

*Year Group: 4*

| | | Written | | Mental | | Overall | | No. of pupils absent | Total no. of pupils |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | | |
| Total | | 100.0 | 15.5 | 100.3 | 16.0 | 100.4 | 15.4 | 521 | 10788 |
| LEA | 1 | 101.6 | 15.9 | 103.1 | 16.9 | 102.5 | 16.1 | 32 | 690 |
| | 2 | 103.0 | 14.5 | 103.7 | 14.6 | 103.6 | 14.3 | 39 | 840 |
| | 3 | 100.8 | 15.6 | 100.8 | 15.1 | 101.1 | 15.4 | 15 | 363 |
| | 4 | 103.5 | 14.8 | 102.9 | 16.0 | 103.8 | 14.8 | 28 | 598 |
| | 5 | 101.4 | 15.6 | 102.8 | 16.5 | 102.2 | 15.8 | 48 | 1120 |
| | 6 | 97.5 | 16.1 | 99.2 | 16.7 | 98.3 | 16.1 | 22 | 486 |
| | 7 | 101.3 | 15.2 | 102.0 | 17.5 | 101.8 | 15.9 | 11 | 275 |
| | 8 | 97.9 | 13.7 | 98.2 | 14.7 | 98.3 | 13.7 | 37 | 472 |
| | 9 | 98.1 | 14.0 | 97.4 | 14.3 | 98.1 | 13.8 | 33 | 615 |
| | 10 | 95.5 | 14.6 | 94.4 | 14.5 | 95.2 | 14.2 | 23 | 478 |
| | 11 | 100.6 | 15.9 | 99.6 | 16.0 | 100.5 | 15.9 | 47 | 877 |
| | 12 | 100.0 | 16.0 | 100.6 | 15.9 | 100.5 | 15.7 | 70 | 1708 |
| | 13 | 97.0 | 15.6 | 98.4 | 16.8 | 97.7 | 15.9 | 65 | 1164 |
| | 14 | 98.0 | 15.1 | 97.0 | 14.7 | 97.9 | 14.7 | 24 | 673 |
| | 15 | 103.9 | 14.2 | 103.6 | 14.8 | 104.4 | 14.0 | 27 | 429 |

# National Numeracy Project - June 1998
## Year : 4 Cohort: 3

### Item Facilities Report

| Item No. | Written Test | Mathematical content | | | | Project | National | Project - National Difference |
|---|---|---|---|---|---|---|---|---|
| 21 | Fraction recognition (half) | Recognise that half the square is shaded | F | | | 52% | 45% | 7% |
| 34 | Find perimeter of rectangle | Rectangle 14cm x 10 cm. What is the perimeter? | A | I | | 47% | 40% | 7% |
| 36 | Percentage recognition | What percentage of rectangle is shaded? (50%) | F | | | 20% | 14% | 5% |
| 40 | Number sequence, with negative numbers, subtract 3 | Write the next number: 13, 10, 7, 4, 1, _ | N | | | 16% | 11% | 5% |
| 31 | Approximate addition of three digit numbers | Best approximation for 897+ 406. 800+400, 950+410, 97+400, 900+400, 800+5 | G | | | 28% | 23% | 5% |
| 30 | Division of two digit number by 7, no remainder | 84 ÷ 7 = _ | D | X | | 33% | 28% | 5% |
| 37 | Recognise prime numbers | Write a prime number greater than 13 | N | | | 13% | 9% | 5% |
| 27 | 2 step word problem, involving x and + | 3 oranges @ 11p, and 1 pineapple @ 95p | A | £ | | 36% | 32% | 4% |
| 14 | Subtract times (minutes) in word problem | Analogue clock. How long from 1:20 to 1:45? | S | T | | 56% | 53% | 4% |
| 16 | Order decimal numbers | Arrange from smallest: 3.6, 3.2, 12.9, 0.5, and 2.3 | P | F | | 75% | 71% | 4% |
| 20 | Multiply three digit number by 3 (no carrying) | 103 x 3 = _ | M | X | | 48% | 45% | 3% |
| 43 | Divide three digit number by 8, no remainder | 816 ÷ 8 = _ | D | X | | 14% | 11% | 3% |
| 23 | | 46 ÷ _ = 23 | D | B | | 39% | 37% | 3% |
| 24 | Multiply two digit number by 6, with carrying | 95 x 6 = _ | M | X | | 18% | 15% | 3% |
| 26 | Numbers divisible by 5 with no remainder | Ring 2 numbers from: 8, 36, 15, 53, 11, 40 | N | | | 50% | 48% | 3% |
| 39 | Divide two digit number by 4, with remainder | 93 ÷ 4 = _ | A | X | | 12% | 9% | 3% |
| 45 | Multiply a decimal by 10 | 7.5 x 10 = _ | M | F | | 9% | 7% | 3% |
| 28 | Addition of three digit number, with carrying | 435 + 397 = _ | A | X | | 47% | 45% | 2% |
| 11 | Estimate to nearest £10 | Ring nearest to £10. £10.35, £11.00, £9.91, £10.26, £9.79 | G | £ | | 67% | 65% | 2% |
| 33 | Subtract fraction from a mixed number | 1½ - ¼ = _ | S | F | | 22% | 20% | 2% |
| 12 | | 60 - 7 = _ | S | X | | 69% | 68% | 1% |
| 47 | Multiply two digit numbers | 37 x 28 = _ | M | X | | 2% | 1% | 1% |
| 32 | Subtract length (in mm and cm) in a word problem | Cut 36cm from 2m length. How much left? | S | L | | 16% | 15% | 1% |
| 38 | Subtract four digit number from 3000 | 3000 - 1997 = _ | S | X | | 14% | 13% | 1% |
| 42b | Finding a percentage of an area | How many cm squares are there in 25% of the grid? | % | | | 6% | 5% | 1% |
| 44 | Percentage of money | What is 75% of £160? | % | | | 4% | 3% | 1% |
| 19 | Division of two digit number by 3, in word problem | 24 seeds in 3 rows. Seeds in each row? | D | E | | 53% | 52% | 1% |
| 29 | Subtraction of three digit number, crossing tens | 354 - 159 = _ | S | X | | 21% | 20% | 1% |
| 42a | Finding a fraction of an area | Grid of cm squares is 6cm * 10cm. Half is shaded. How many cm squares are shaded? | I | F | | 10% | 10% | 1% |
| 41 | Average speed, in word problem | Car travels 120 miles in 3 hours. Average speed? | D | T | | 12% | 12% | 1% |

# National Numeracy Project - June 1998
## Year : 4 Cohort: 3

### Item Facilities Report

| Item No. | Written Test | Mathematical content | | | | Project | National | Project - National Difference |
|---|---|---|---|---|---|---|---|---|
| 8 | | 86 - _ = 67 | S | B | | 74% | 73% | 1% |
| 46 | Add fractions | $5/_8 + 1/4 = \_$ | A | F | | 3% | 2% | 1% |
| 35 | Convert centimetres to millimetres | How many millimetres is 11 centimetres? | M | L | | 19% | 18% | 0% |
| 5 | | _ + _ = 70 | A | O | | 91% | 90% | 0% |
| 17 | Doubling | Double 17 | M | | | 68% | 68% | 0% |
| 9 | Add two digit numbers, crossing tens | 27 + 36 = _ | A | X | | 73% | 72% | 0% |
| 10 | Add three digit numbers, no crossing | 332 + 514 = _ | A | X | | 72% | 72% | 0% |
| 22 | Multiply two digit number by 10, in word problem | 20 packs, 10 boxes in each. How many boxes? (20*10) | M | E | | 48% | 49% | 0% |
| 1 | Number line with numbers less than 10 (decreasing) | Missing numbers in sequence 9, 8, 7, _, _, 4 | N | | | 97% | 98% | -1% |
| 4 | Add 10 to a two digit number | 83 + 10 = _ | A | X | | 92% | 93% | -1% |
| 13 | Place value | Ring number with 7 tens. 7, 69, 78, 107, 707 | P | | | 61% | 62% | -1% |
| 18 | | 75 - _ = 67 | S | B | | 57% | 58% | -1% |
| 6 | Subtract money, in a word problem | Bananas cost 18p. Meera has 6p. How much more does she need? | S | £ | | 80% | 82% | -1% |
| 7 | Read a graph | Bar charts, scale in ones. Read seaweed | R | H | | 92% | 94% | -2% |
| 2 | Read a scale (whole numbers) | Scale numbered in 5s from 0 to 15, read 8 | R | | | 79% | 81% | -2% |
| 15a | Multiply single digit numbers, in word problem | 7 cards of buttons, each with 5 (7 x 5) | M | E | | 71% | 73% | -2% |
| 25 | Read weight from scale | Read 400g from scale 0 to 3 kg - marked every 500g | R | | | 46% | 48% | -2% |
| 15b | Two step word problem (+ and -) | 2 cards of round buttons & 3 of square | M | E | | 61% | 63% | -3% |
| 3 | Subtract single digit numbers, in word problem | Emma has 4 apples & Jane 7. How many more has Jane? | S | E | | 80% | 83% | -3% |

# National Numeracy Project - June 1998
## Year : 4 Cohort: 3

### Item Facilities Report

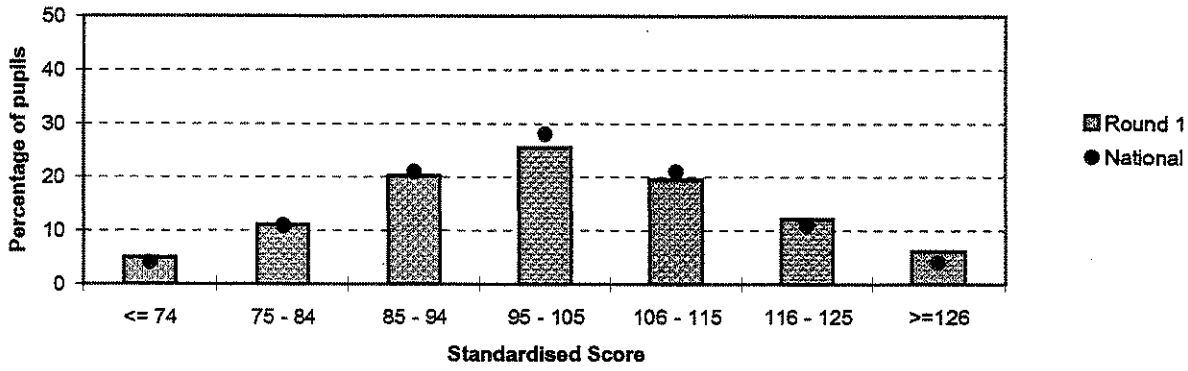
| Item No. | Mental Test | Mathematical content | | | | Project | National | Project - National Difference |
|---|---|---|---|---|---|---|---|---|
| 12 | 'Multiplied by itself' | What number multiplied by itself gives 36? | M | B | | 31% | 22% | 10% |
| 7 | 'Write to nearest hundred' | Write 254 to the nearest hundred | G | | | 46% | 39% | 7% |
| 9 | 'Write in figures' | Write in figures the number 1072 | P | | | 58% | 52% | 6% |
| 17 | 'Divide' by 9, no remainder | 72 divided by 9 | D | | | 24% | 18% | 6% |
| 13 | 'Subtract', using two digit numbers | What is 89 subtract 25? | S | | | 28% | 23% | 5% |
| 21 | 'One fifth of' | What is one fifth of twenty? | F | | | 21% | 17% | 4% |
| 16 | 'Take from' | What must I take from 43 to leave 9? | S | B | | 17% | 13% | 4% |
| 19 | 'Multiplied by' 6 | 15 multiplied by 6 | M | | | 13% | 9% | 4% |
| 20 | 'Divide by' 2, no remainder | Divide 16 by 2 | D | | | 52% | 49% | 4% |
| 15 | Divide' by 100, no remainder | Divide 700 by 100 | D | | | 26% | 22% | 4% |
| 14 | 'Difference' | Write two numbers which have a difference of 12 | S | O | | 19% | 16% | 3% |
| 18 | Multiplication of money, in a word problem | A T-shirt costs £3.95. How much do 2 cost? | A | £ | | 19% | 17% | 3% |
| 22 | 'Share equally among' 4 | Share 92 equally among 4 | D | | | 7% | 5% | 2% |
| 10 | 'I take away a number...it leaves...what is the number?' | I take away a number from 81. It leaves 72. What is the number? | S | B | | 50% | 48% | 2% |
| 6 | 'Total' of 4 single digit numbers, with pairs of numbers making ten | What is the total of 8, 3, 7, and 2? | A | | | 60% | 59% | 1% |
| 2 | 'Add', using single digit numbers, crossing ten | What is 5 add 9? | A | | | 90% | 90% | 0% |
| 4 | 'Lots of' ten | What is 8 lots of 10? | M | | | 84% | 85% | 0% |
| 8 | 'More than' | What is 8 more than 72? | A | | | 59% | 59% | -1% |
| 3 | 'How many altogether?', add ten to a two digit number | How many are 39 and 10 altogether? | A | | | 82% | 82% | -1% |
| 11 | 'How many sevens in...?' | How many sevens in 35? | D | | | 43% | 44% | -1% |
| 24 | '15 percent of' | What is 15% of 200? | F | | | 0% | 2% | -2% |
| 5 | Multiplication by 5 in a word problem | I have 3 dominoes. Each dominoe has 5 dots. How many dots altogether on the three dominoes? | M | E | | 87% | 89% | -2% |
| 1 | Addition of money in word problem | Mark has a 20p coin. Vijay gives him 6p. How much has he now? | A | £ | | 91% | 93% | -2% |
| 23 | 'Estimate' a division, in a word problem | A pile of 10 coins is 19 millimetres high. Estimate the thickness of one coin | D | G | | 0% | 15% | -15% |

# National Numeracy Project - June 1998
## Year : 4 Cohort : 3

**Project Level**

**No. of Round 1 Pupils 10252**

**Chart 1 : Overall Test Score distribution**




*The above chart shows the percentage of pupils in the project in the different age-standardised score bands for the first round of testing and compared with the National standardised score distribution. Similar distributions for the written and mental tests are shown below.*

**Chart 2: Written Test Score distribution**

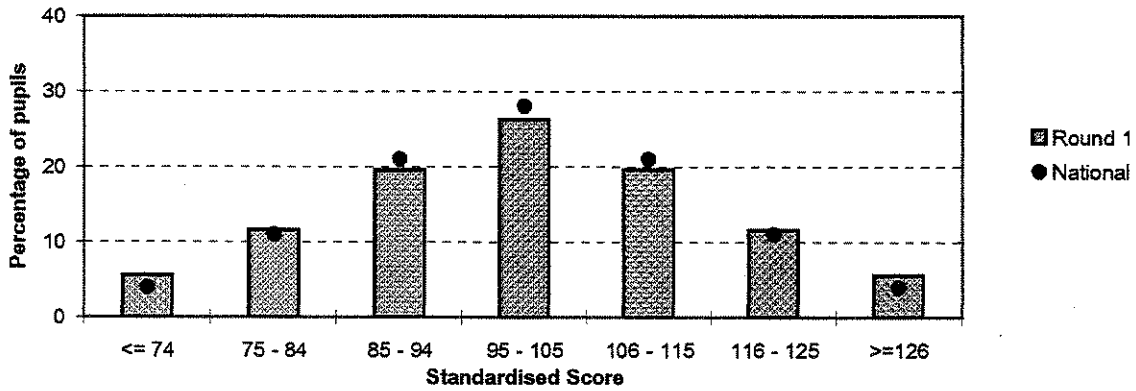
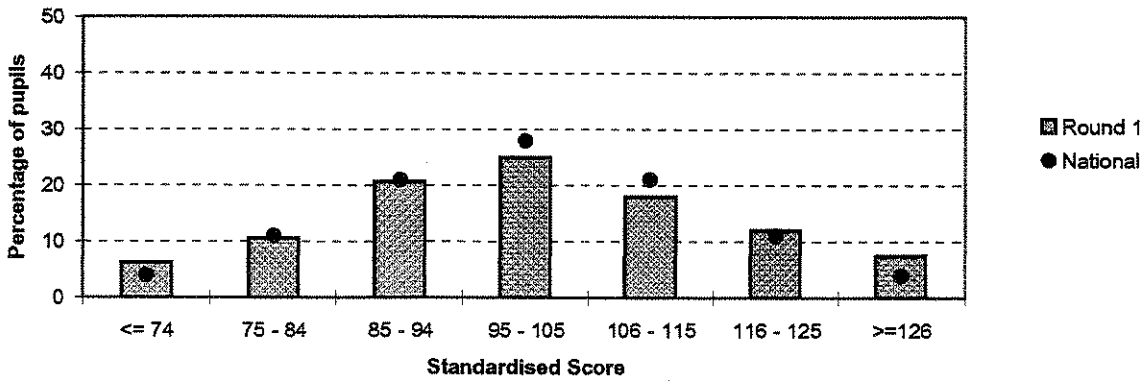


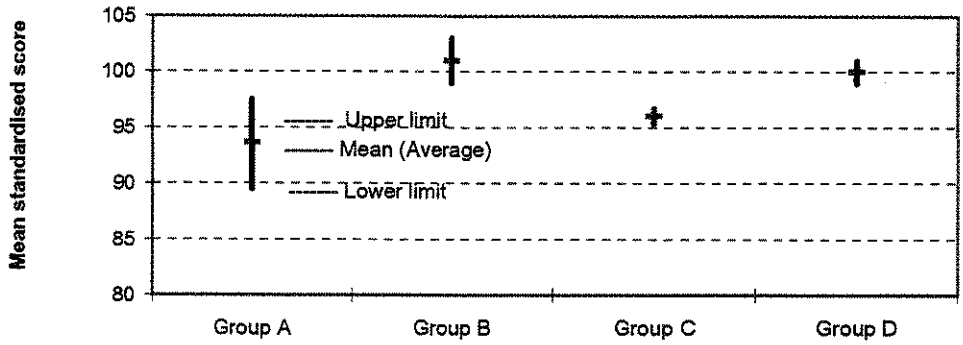

**Chart 3 : Mental Test Score distribution**



**Project Level**

**No. of Round 1 Pupils 10252**

**Example Chart : Mean scores**




*The above example shows, for each of four groups, the mean (average) standardised score and an estimate of the "95% confidence band" for each of these mean scores. Such a band means that we can be 95% certain that the mean score lies between the upper and lower limits of the vertical line, as annotated for Group A. If the top of a vertical line is lower than the bottom of another vertical line, then it is likely that there is a real difference between the two groups. If on the other hand the vertical lines overlap, then it is likely that any difference between the two scores is not significant. In this example, the difference between Groups A and B is likely to be real but the difference between Groups B and D is not significant.*

**Chart 4 : Mean scores for first round of testing**

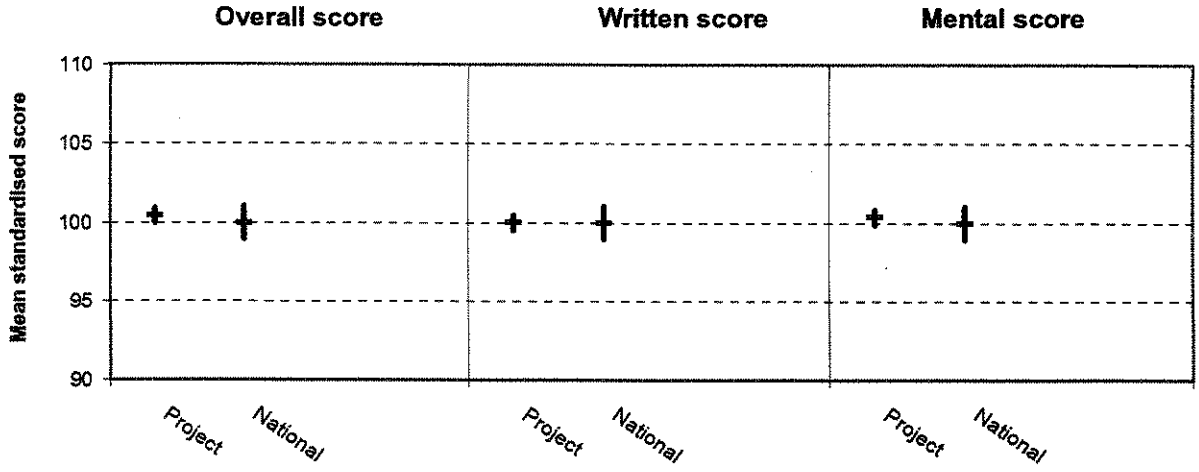



*Chart 4 shows the mean (average) score for the project and compares it with the pupils in the schools taking part in the Project as a whole, and the National Standardisation sample.*

*(continued)* **National Numeracy Project - June 1998**
**Year : 4 Cohort : 3**

**Project Level**

**No. of Round 1 Pupils 10252**

**Chart 5 : Mean project scores for first round of testing**

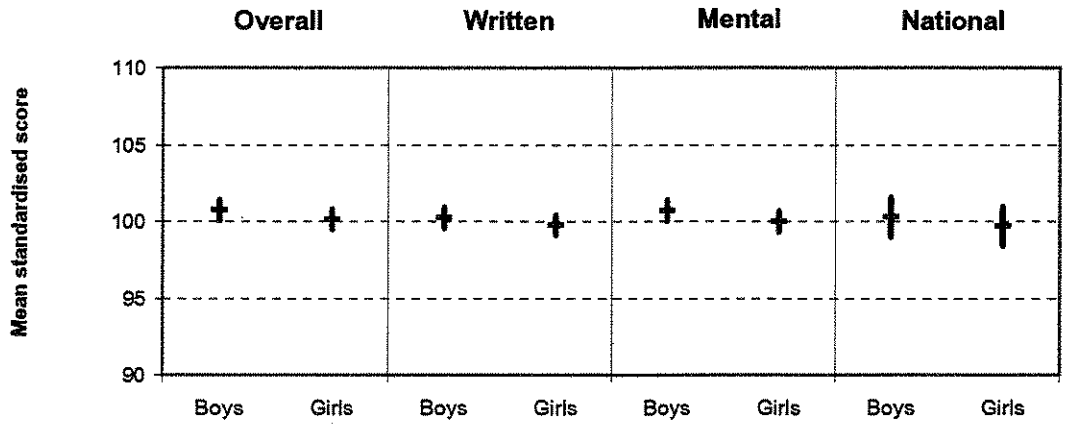



*Chart 5 shows the mean (average) score in the project separately for boys and girls and compares it with the National Standardisation sample.*

**Chart 6 : Mean Standardised scores by term of Birth**

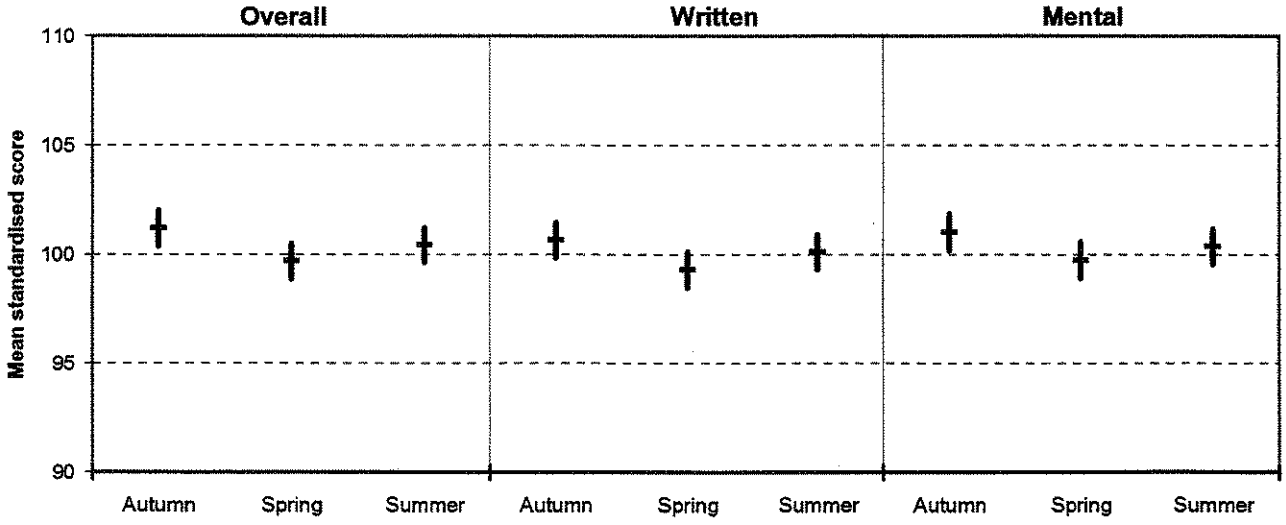



*Chart 6 shows the comparison of the mean (average) score of pupils born in the Autumn, spring and summer.*

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# National Numeracy Project:
## Technical Report 1998

As part of the evaluation of the National Numeracy Project, a comprehensive testing programme has been organised in participating schools.

Pupils are assessed using specially developed numeracy tests at three separate time points during their school's involvement in the Project so that measures of progress can be calculated. The testing programme has been in place since January 1997 and this report presents the data collected from the programme up until January 1998. The work of the National Numeracy Project is planned to continue until summer 2000.

Analysis of the test results shows that there has been a significant rise in the average age-standardised scores over time. The results have also been analysed in the context of background information to investigate variation in progress between different groups of pupils.

This report contains the entire data set as reported to QCA, the sponsors for the testing programme within the National Numeracy Project, in autumn 1998. It also includes technical details of the statistical analyses carried out on the data with some explanatory text.

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