PERFORMANCE INDICATORS IN PRIMARY SCHOOLS

TECHNICAL REPORT 2001

CD-ROM Version

Contents

Introduction

This Technical Report relates to the Performance Indicators in Primary Schools (PIPS) Baseline Assessment in 2000. The data were collected within the first seven weeks of the start of the September Term of 2000. The Report starts by looking at the representative sample that forms the basis of the data, and then at each of the sections within the assessment. This is followed by details of the sub-scales in early maths, early reading and phonics and the way in which the standardised scores relate to the raw scores. The relationship between the three different measures are set out, followed by comparisons between the various groups that were identified in the collection of the data (age, sex, English as an additional language and special educational needs). Two sections follow on the technical quality of the assessment. The first is on the reliability and the second on the validity. The scales themselves are then explored and the way that the T scores relate to QCA scores and to percentiles. Finally age conversion charts are given.

The PIPS project itself is described in more detail in other publications including 'Using the PIPS Baseline Assessment' and a description of all the CEM Centre projects can be found on the website http://www.cem.dur.ac.uk/. Further details may also be obtained by writing to the CEM Centre using the address that appears at the end of this report.

In addition to the cognitive aspect of the PIPS baseline assessment a separate assessment of Personal and Social Development is available, but that is not dealt with here.

Representative Samples

The PIPS baseline assessment was used in September by 3874 schools and 116072 pupils. In order to create a representative sample we abstracted a group of schools from around England from our total sample that gave us a representative group. The representativeness was checked against the geographical location, LEA membership, the published league tables, the schools' postcodes and the data published by QCA on their scales.

The summary table below gives some details from the analysis. The data from the published KS2 results can only relate to schools with pupils in Year 6 and the table shows the average school percent of pupils gaining a level 4 in English, maths and science. This is shown for the national data and the schools in the sample that had KS2 pupils. The standard deviation for the percentages is shown in brackets. This is followed by the average number of pupils in the school at the end of KS2 in 2000.

The Deprivation Index, based on the work of Townsend, was derived from the schools' postcodes linked to the 1991 Census.

QCA have published data on their scales and the last two figures compare the PIPS results with parallel data from QCA. There is some doubt about the representativeness of the QCA data and these figures are included by way of interest rather than as assurance.

Number of pupils 44810, number of schools 1412

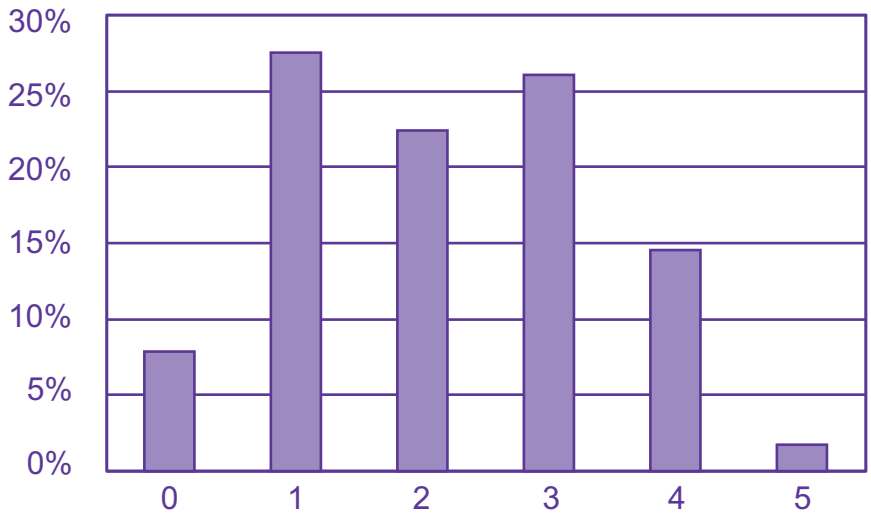
	Number of schools	Sample (SD)	National data (SD)
Percentage attaining level 4 or above in English	988	75.6 (15.2)	75.8 (14.9)
Percentage attaining level 4 or above in mathematics	988	73.3 (15.8)	72.8 (15.6)
Percentage attaining level 4 or above in science	988	86.0 (12.4)	85.6 (12.5)
Number of pupils at KS2	988	38 (17)	44 (26))
% recognising all letter shapes by names and sounds, from QCA scales	1412	2.6	2.0
% recognising numbers to 10 and writes 1-10 from QCA scales*	1412	29.9	20.0

* For the PIPS test we counted the pupils able to score 10 or more in the numbers section.

Distribution of responses to scales within the assessment

Name writing

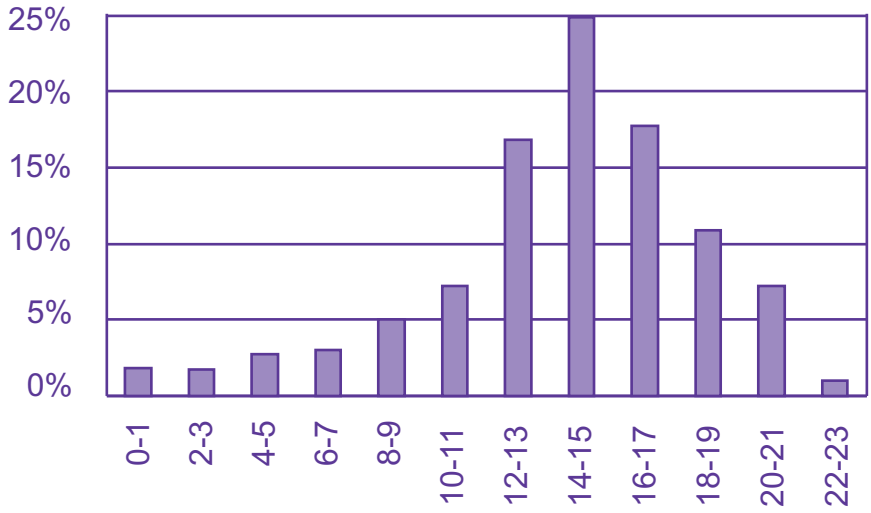
score	(%)
0	7.9
1	27.5
2	22.4
3	26.1
4	14.5
5	1.7



In this section pupils simply had to write their name and the teacher rated the work on a 0–5 scale using descriptions provided by PIPS. Around 10% of pupils were not able to write their names at all, whereas about 2% were able to make a very respectable job of the task. More commonly pupils wrote their names with varying accuracy and accomplishment. About two thirds of all pupils score 2 or above indicating that they were able to form at least some letters clearly. The average score was 2.2.

Picture vocabulary

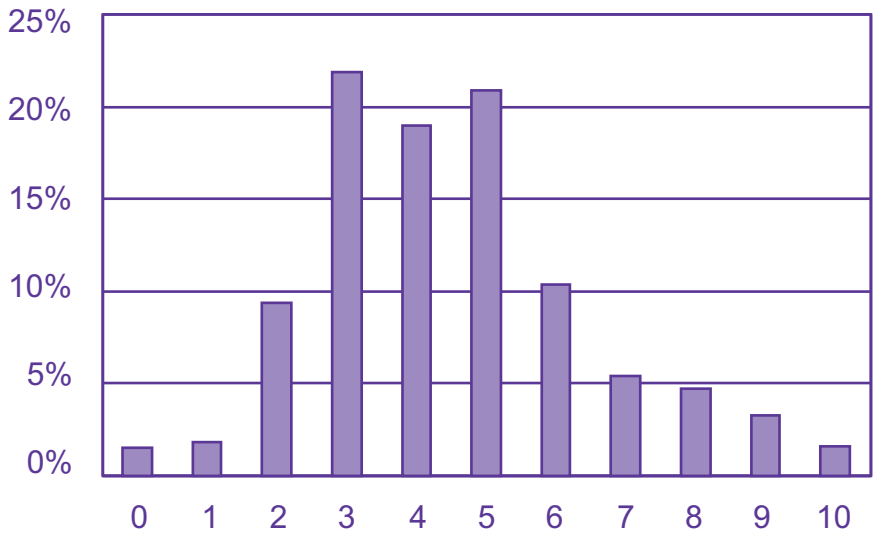
score	(%)
0-1	1.8
2-3	1.7
4-5	2.7
6-7	3.0
8-9	5.0
10-11	7.2
12-13	16.8
14-15	24.9
16-17	17.7
18-19	10.9
20-21	7.2
22-23	1.0



The earlier part of the vocabulary section was fairly easy with one per cent of pupils not identifying any of the named objects. Most pupils scored between 13 and 17 points in this section and less than 2 per cent correctly identified all the words that they were asked.

Ideas about Reading

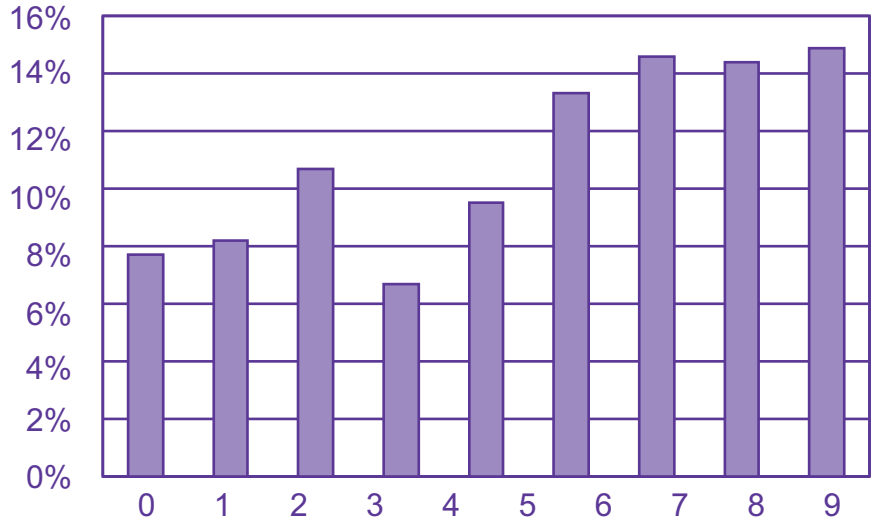
score	(%)
0	1.5
1	1.8
2	9.4
3	21.9
4	19.0
5	20.9
6	10.4
7	5.4
8	4.7
9	3.3
10	1.6



The results in this section were fairly normally distributed. Almost all children could point to people who were writing or reading, but not surprisingly very few managed to point out where a sentence stopped. Most children got as far as being able to point out a word or a letter.

Repeating Words

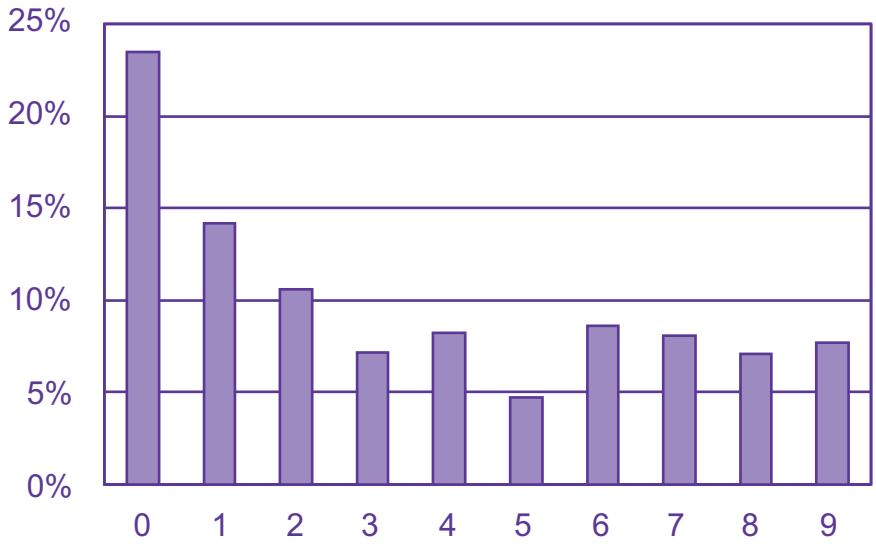
score	(%)
0	7.7
1	8.2
2	10.7
3	6.7
4	9.5
5	13.3
6	14.6
7	14.4
8	14.9



About 8% of children were unable to repeat any of the example words they heard. Over half of he children scored at least 6 out of 8, and 15% repeated all the words correctly.

Rhyming

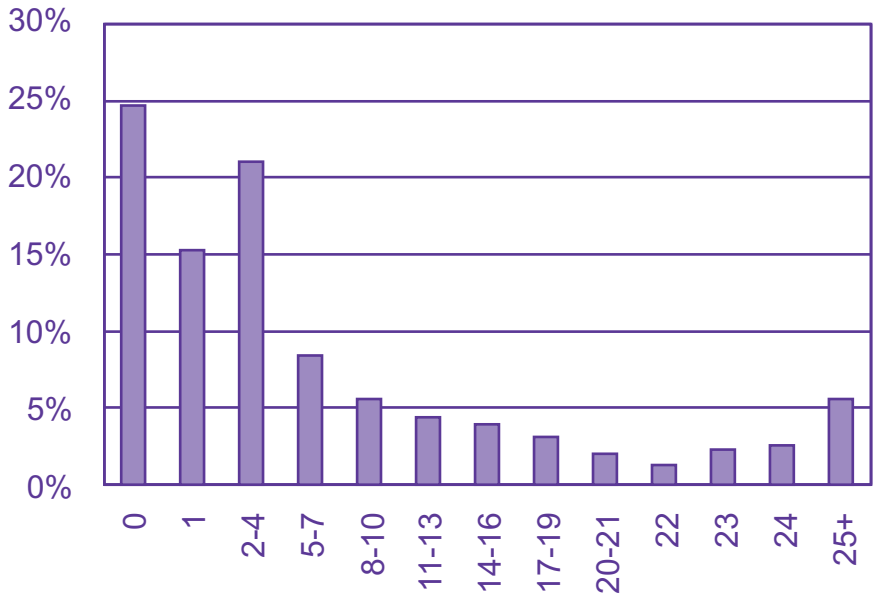
score	(%)
0	23.5
1	14.2
2	10.6
3	7.2
4	8.2
5	4.7
6	8.6
7	8.1
8	7.1
9	7.7



A large proportion of children did not understand rhymes, at least in the way that they were presented within this baseline assessment. This section was a multiple-choice section and one would expect some pupils to get low scores by luck. Perhaps as many as 50% showed that they had not grasped the concept of rhyming when they started school. About 15% seemed clearly to be on top of the idea.

Letter Identification

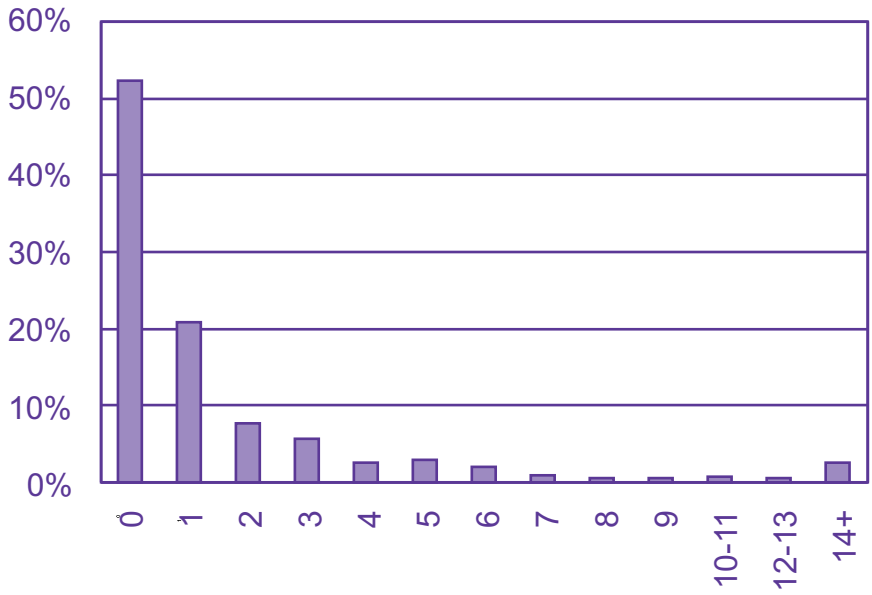
score	(%)
0	24.7
1	15.3
2-4	21.0
5-7	8.4
8-10	5.6
11-13	4.4
14-16	3.9
17-19	3.1
20-21	2.0
22	1.3
23	2.3
24	2.6
25+	5.6



Just under a quarter of children did not identify a single letter and about a fifth correctly identified just one letter — often the first letter of their own name. The proportion identifying progressively larger numbers of letters decreased steadily up to about three quarters of the letters shown. Then the proportion increased up to almost 6% of the pupils who knew every letter shown to them.

Words

score	(%)
0	52.3
1	20.9
2	7.6
3	5.7
4	2.6
5	2.9
6	2.0
7	0.9
8	0.6
9	0.5
10-11	0.8
12-13	0.6
14+	2.6*

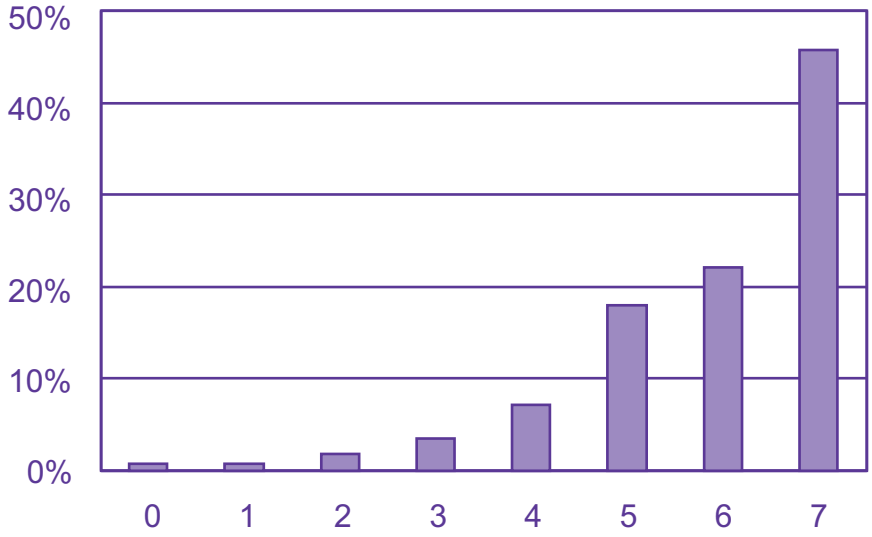


* The maximum score on the text version was 14. The maximum score on the CD version was 111, attained by 0.004% (2 pupils). 0.15% scored over 100.

Slightly different rules were used for the assessment in the text and CD versions. In the CD version it was possible for pupils to access a whole section on reading that was not available to the text users. In practice very few pupils got that far. About half the pupils did not read any word shown to them and only 3% could read more than a handful of words. Interestingly a very small proportion (0.6%) were reading well enough to cope well with sentences.

Ideas about Maths

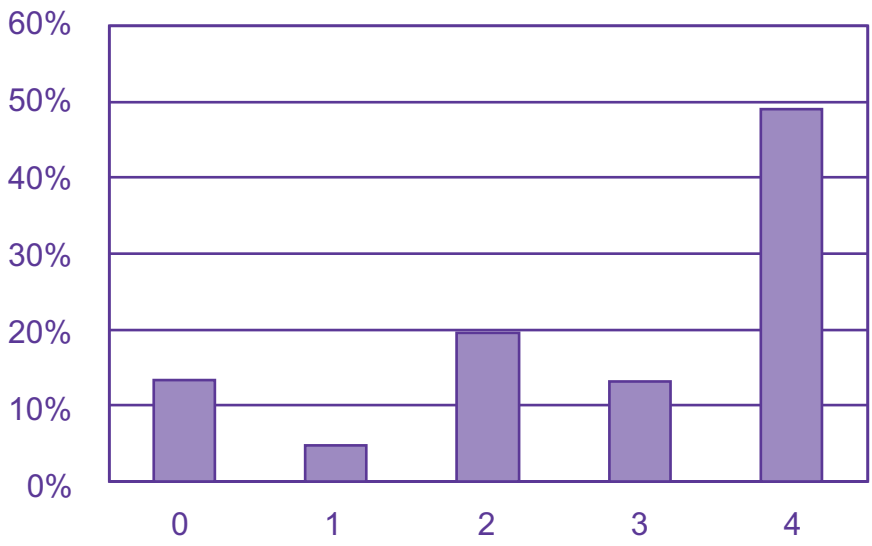
score	(%)
0	0.8
1	0.8
2	1.9
3	3.5
4	7.1
5	18.0
6	22.1
7	45.8



The vast majority of pupils knew “biggest” and “smallest” and the majority also knew “more”, “least”, “most”, “tallest” and “shortest”.

Counting

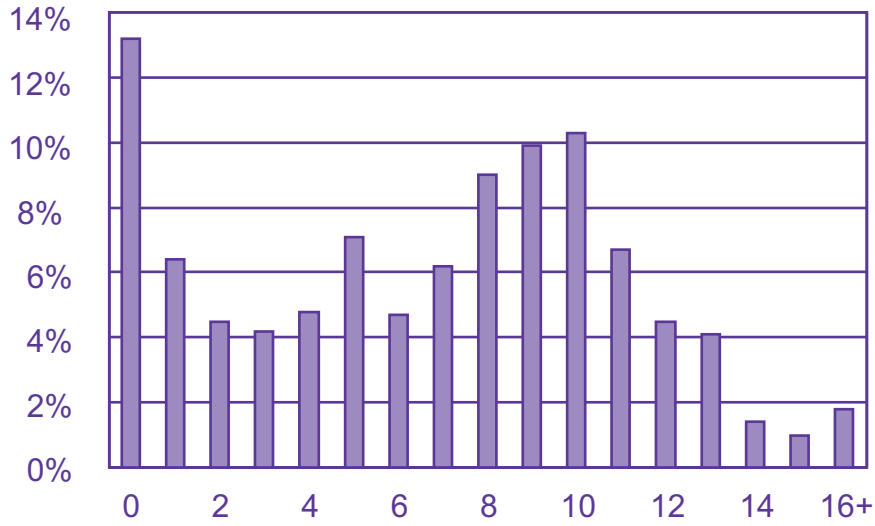
score	(%)
0	13.4
1	4.8
2	19.6
3	13.1
4	49.0



Just about half of all the pupils managed to count 4 objects and then say how many there were once they had been obscured and then do the same with 7 objects. About one in eight pupils did not manage to count the 4 apples shown in a picture.

Digit Identification

score	(%)
0	13.2
1	6.4
2	4.5
3	4.2
4	4.8
5	7.1
6	4.7
7	6.2
8	9.0
9	9.9
10	10.3
11	6.7
12	4.5
13	4.1
14	1.4
15	1.0
16+	1.8*

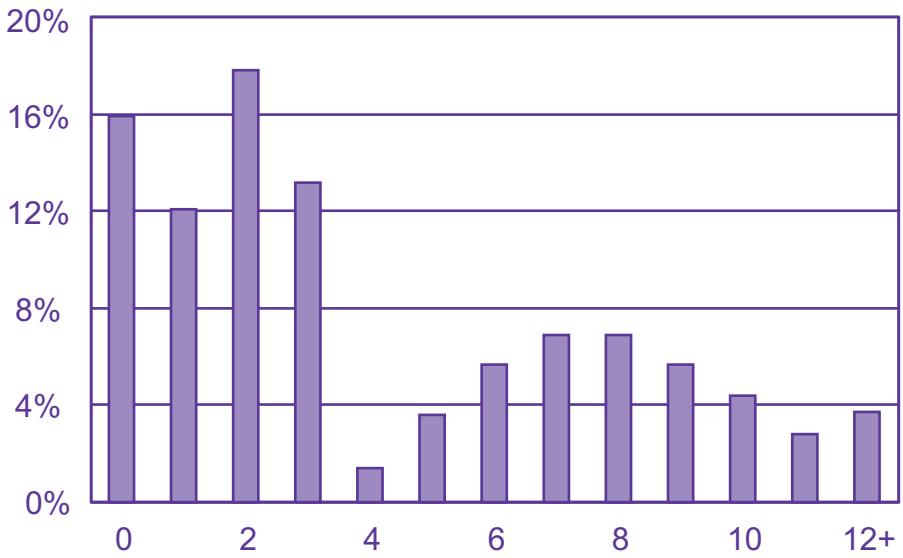


* The maximum score on the text version was 19, involved recognising 10 digits and 9 two-digit numbers and was achieved by 1.0% of pupils. The maximum score on the CD version was 21, involved recognising 10 digits, 6 two-digit numbers and 5 three-digit numbers and was achieved by 0.3% of pupils.

About half the children starting school correctly named six digits and about one in eight did not identify any digits. About 80% of pupils knew all ten digits by name.

Sums

score	(%)
0	15.9
1	12.1
2	17.8
3	13.2
4	1.4
5	3.6
6	5.7
7	6.9
8	6.9
9	5.7
10	4.4
11	2.8
12+	3.7*



* The maximum score for the text version was 8. The maximum score for the CD version was 32. This was not achieved by any pupils, although 0.1% scored over 19.

One in six children did not calculate any sums correctly, and only 40% scored more than 3.

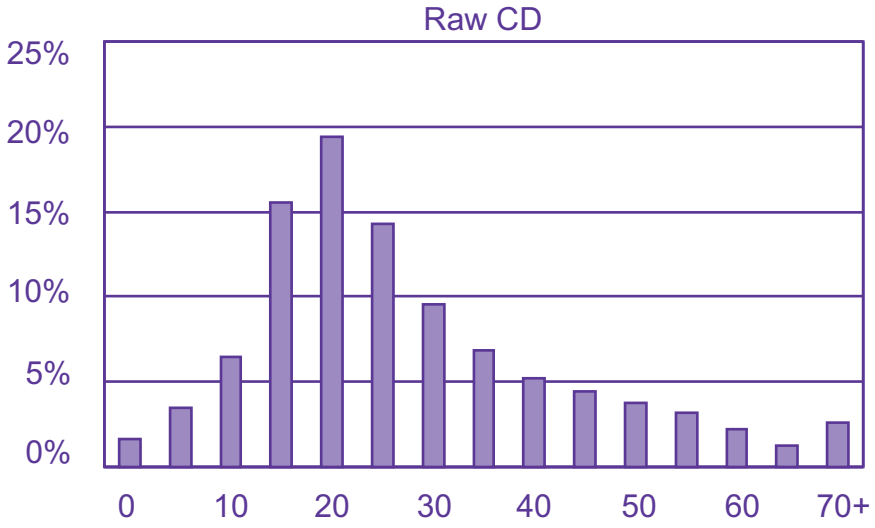
Distribution of scores on the sub-scales and total score

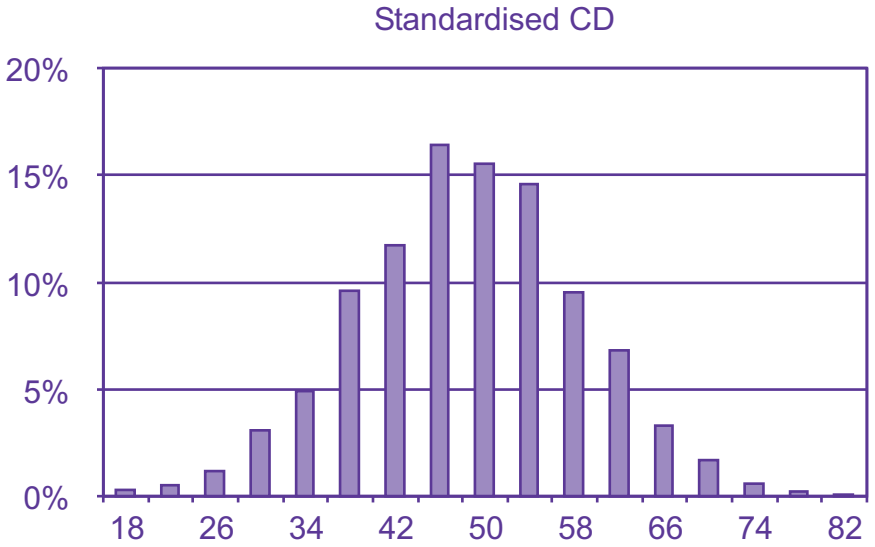
The Early Reading scale was formed by totalling all the scores in the sections on Writing, Picture Vocabulary, Ideas about Reading, Letter Identification and Words. The Early Maths scale included the scores from Ideas about Maths, Counting, Digit Identification and Sums. The Phonics scale included the scores from the Repeating Words and Rhyming sections.

From the totals scores in the sub-sections the scores were normalised* using ranks and converted to T scores which have a mean of 50 and a standard deviation of 10. This was carried out quite separately for the CD and text versions of the assessment making the T scores from the two forms comparable.

Early Reading

The Early Reading score was formed by summing all points that a pupil scored in the Writing, Picture Vocabulary, Ideas about Reading, Letter Identification and Words sections. The distribution below shows a negatively skewed distribution since some pupils were able to get very high scores.

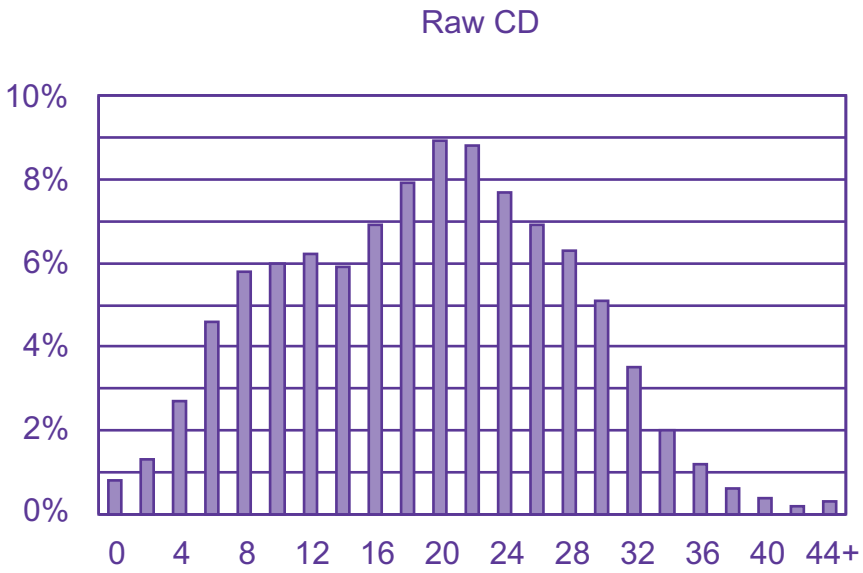


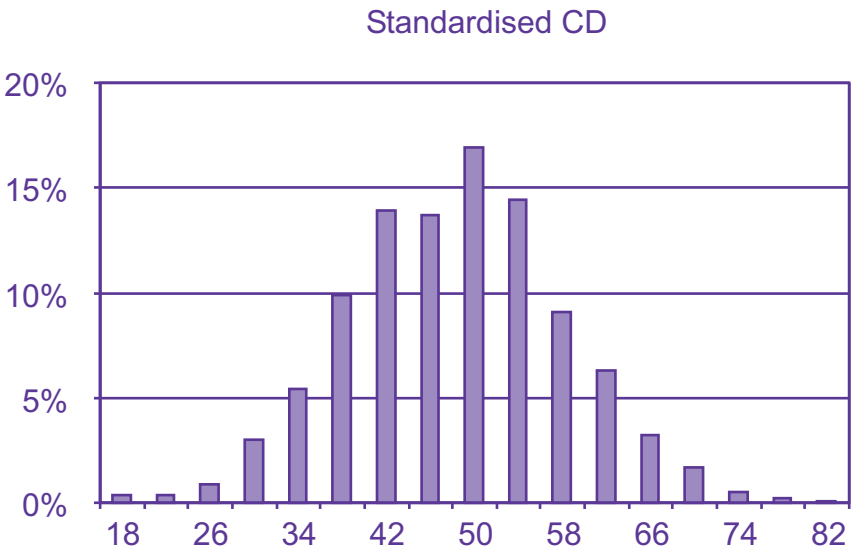


* The process of 'standardisation' simply gives the data a known mean and standard deviation. Normalised data has been given a normal distribution. In this booklet the terms are used interchangeably.

Early Maths

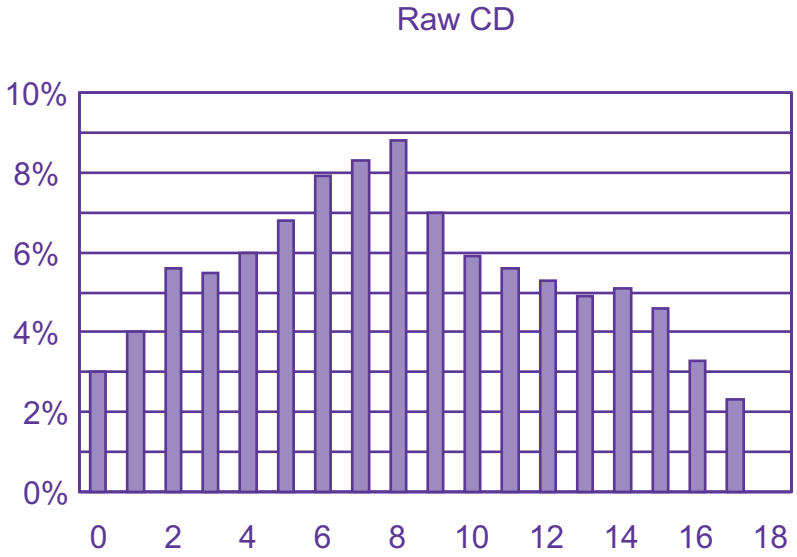
The Early Maths score was formed by summing all points that a pupil scored in the Ideas about Maths, Counting, Digit Identification and Sums sections.

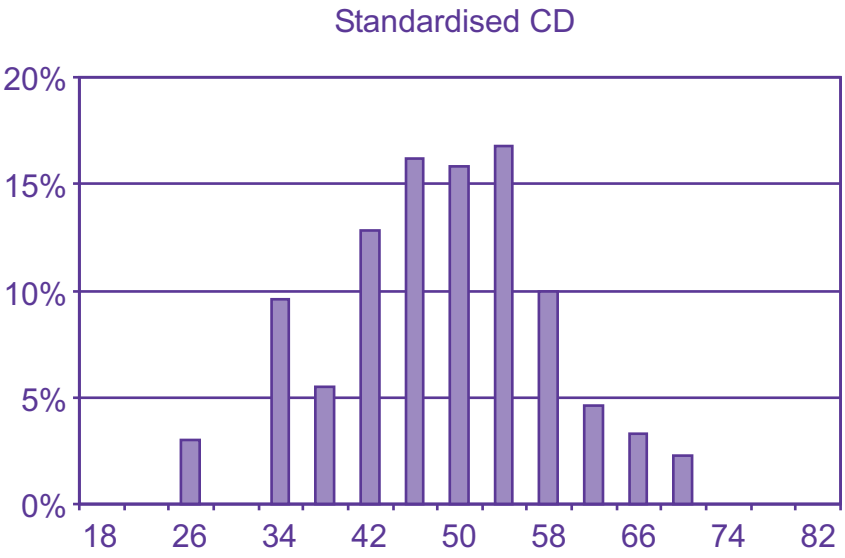




Phonics

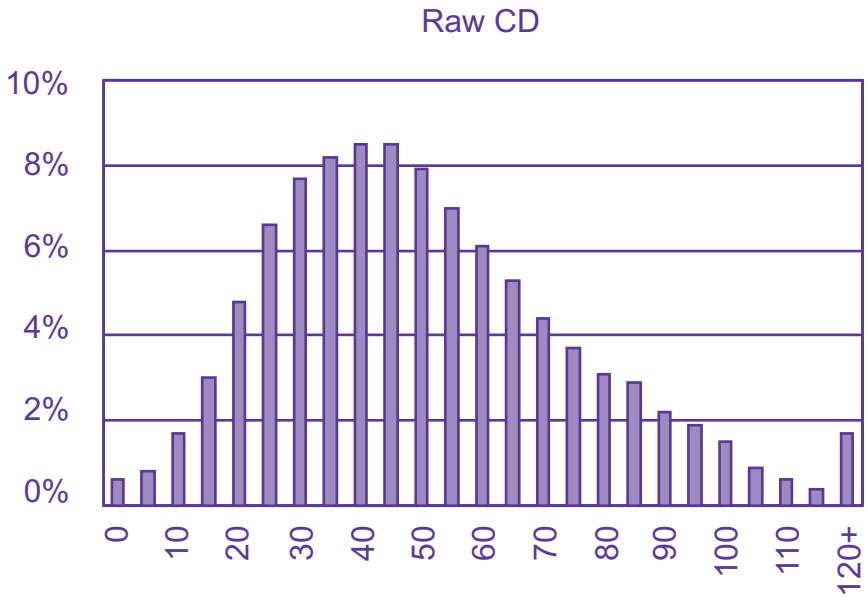
The Phonics section was normalised to give the distributions shown below.

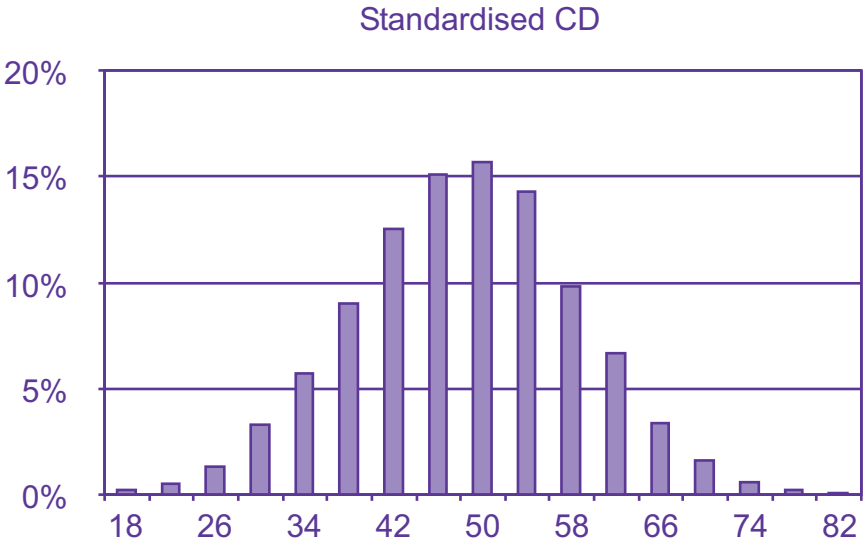




Total

The Total score was formed by summing all points scored across the whole of the assessment, apart from the Repeating Words section.





Relationships between the various measures

Correlations between the various scales

	Early Reading	Phonics
Early Maths	0.79	0.55
Phonics	0.56	

Comparison of groups

In addition to the assessment results data were collected on: age, sex, English as an additional language, Special Educational Needs stage, degree of hearing loss, pre-school attendance, whether the assessment was carried out in a language other than English, date of assessment, postcode, ethnic origin, whether the child was born in the UK and entitlement to free school meals.

Much of these data will be used within Local Authorities and for further research. What follows is a break down by four selected variables: age, sex, English as an additional Language and Special Educational Needs stage. Readers with an interest in other patterns in the data should contact the CEM Centre since several variables have been the subject of independent investigation.

Age

The numbers of pupils born in each month were:

Month	Number
September	4172
October	4128
November	3880
December	3798
January	3723
February	3410
March	3361
April	3388
May	3483
June	3433
July	3721
August	3625

Early Reading

Means and SDs by month of birth.

Month	mean	SD
September	53.6	9.68
October	52.8	9.90
November	52.3	9.72
December	51.5	9.74
January	50.9	9.86
February	50.1	9.80
March	49.5	9.85
April	49.1	9.56
May	48.5	9.70
June	47.7	9.46
July	47.2	9.42
August	45.9	9.65

Early Maths

Means and SDs by month of birth.

Month	mean	SD
September	54.4	9.73
October	53.6	9.74
November	52.7	9.63
December	51.7	9.62
January	51.0	9.62
February	50.0	9.50
March	49.4	9.71
April	48.8	9.60
May	48.2	9.60
June	47.2	9.31
July	46.6	9.23
August	45.2	9.32

Phonics

Means and SDs by month of birth.

Month	mean	SD
September	52.9	9.72
October	52.4	9.91
November	52.0	9.71
December	51.2	9.74
January	50.7	9.79
February	50.0	9.71
March	49.6	9.62
April	49.4	9.51
May	48.8	9.61
June	47.9	9.40
July	47.7	9.14
August	46.6	9.25

Total

Means and SDs by month of birth.

Month	mean	SD
September	54.1	9.61
October	53.3	9.76
November	52.6	9.59
December	51.7	9.63
January	51.0	9.74
February	50.1	9.65
March	49.5	9.84
April	48.9	9.57
May	48.3	9.65
June	47.3	9.43
July	46.7	9.33
August	45.3	9.54

Sex

sex	number
male	22742
female	21533

Early Reading

sex	mean	SD
male	49.0	9.90
female	51.1	9.95

Early Maths

sex	mean	SD
male	49.5	10.32
female	50.5	9.57

Phonics

sex	mean	SD
male	49.5	9.78
female	50.6	9.79

Total

sex	mean	SD
male	49.1	10.99
female	51.0	9.91

English as an additional language

EAL	number
no	40045
yes	2928

Early Reading

EAL	mean	SD
no	50.6	9.51
yes	41.7	12.54

Early Maths

EAL	mean	SD
no	50.4	9.79
yes	44.9	11.01

Phonics

EAL	mean	SD
no	50.3	9.78
yes	45.8	9.10

Total

EAL	mean	SD
no	50.6	9.65
yes	42.7	11.85

Special educational needs

SEN stage	number
0	43275
1	646
2	228
3	356
4	99
5	206

Early Reading

SEN stage	mean	SD
0	50.3	9.87
1	43.1	9.37
2	41.9	9.05
3	40.9	9.48
4	40.5	11.29
5	40.3	11.56

Early Maths

SEN stage	mean	SD
0	50.3	9.86
1	42.9	9.19
2	41.4	9.14
3	40.7	9.66
4	40.3	10.71
5	40.5	11.38

Phonics

SEN stage	mean	SD
0	50.3	9.71
1	43.5	8.65
2	42.7	8.39
3	41.0	8.62
4	40.2	9.69
5	40.4	9.54

Total

SEN stage	mean	SD
0	50.3	9.86
1	42.5	9.24
2	41.1	9.01
3	40.3	9.28
4	39.9	11.06
5	39.9	11.57

Reliability

The crucial measure of reliability in a baseline assessment must be the extent to which independent assessors arrive at the same result. The test-retest reliability was measured by a Research Associate from the CEM Centre on a random sample of children from reception classes in the autumn term. The mean time between the first assessment and the re-assessment was three weeks. Twenty nine pupils in five schools were re-assessed using the CD version. The results are as follows:

correlation	
reading	0.97
maths	0.90
total (excluding phonics)	0.98

The test–retest reliability of each section of the CD version was as follows:

correlation	
writing	0.65
vocabulary	0.74
ideas about reading	0.34
repeating words	0.43
rhymes	0.61
letter identification	0.93
words	0.99
ideas about maths	0.42
counting	0.57
sums	0.66
number identification	0.90

Validity

The PIPS baseline assessment was constructed after a careful reading of the literature. Those assessment areas, which had been successful in predicting later reading and mathematics, were developed and incorporated into the assessment. Many teachers were involved, and groups put together by the National Association of Headteachers as well as Solihull LEA were fully involved in its original development. Each year the data are examined both in terms of internal consistency and in relation to the prediction of the End of Reception assessments as well as Year 2 assessments. The comments of teachers are also considered and the baseline assessment is refined accordingly. (A published analysis of the data may be found in Tymms 1999*.) This year on year refinement has resulted in an assessment with considerable acceptance in schools but it is important to record data on the extent to which the baseline assessment does predict later performance.

Predictive validity

As the years go by, more and more data is collected and this can be related to later assessments. In the tables below we can see the correlations between the Baseline score and the End of Reception assessment in PIPS based on the reading and the maths scores and correlations up to the PIPS reading and maths scores at Year 2, 4-5 terms after End of Reception, and also in relation to KS1 results. The results are based on the CD based version of PIPS. In general these findings give considerable confidence in the predictability of attainment, at least to the extent that anything can be expected to be predictable at this particular stage.

	correlation with PIPS total	number of pupils	date
end of reception maths	0.67	14460	94/95
end of reception reading	0.75	14460	94/95
Y2 maths (PIPS)	0.59	2512	97/00
Y2 reading (PIPS)	0.61	2516	97/00
KS1 reading task level	0.56	5975	97/00
KS1 reading comprehension level	0.55	6137	97/00
KS1 writing level	0.60	6964	97/00
KS1 spelling level	0.48	6790	97/00
KS1 maths level	0.59	6989	97/00
KS1 average level	0.66	7045	97/00

Reports which give further details of the connections between the PIPS baseline assessments and later assessments are available from the CEM Centre.

* Tymms, P. B. (1999). Baseline assessment; value-added and the prediction of reading. Journal of Research in Reading, 22(1), 27-36.

Conversion tables and error of measurement

The reliability of assessments can be used to estimate standard error of measurement and those are set out under the conversion tables using a 90 per cent confidence interval.

The PIPS baseline assessment has been standardised to have a mean of 50 with a standard deviation of 10. The scores are known as T scores and they can readily be converted to scores with another mean and standard deviation. The tables below can be used to read off a T score and its equivalence on the QCA scales that use a mean of 100 and a standard deviation of 15.

The tables are followed by a conversion chart that can be used in the same way. After that is a curve which relates the T scores to the percentile equivalent.

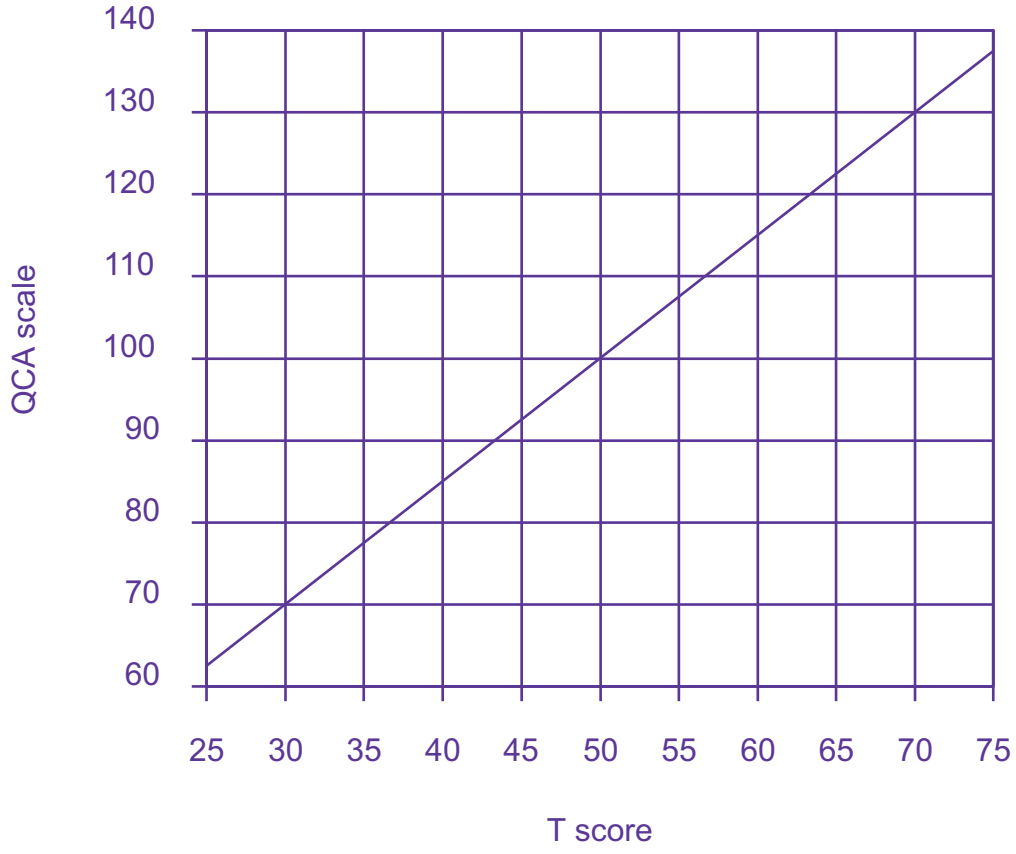
Conversion between T scores and QCA scales

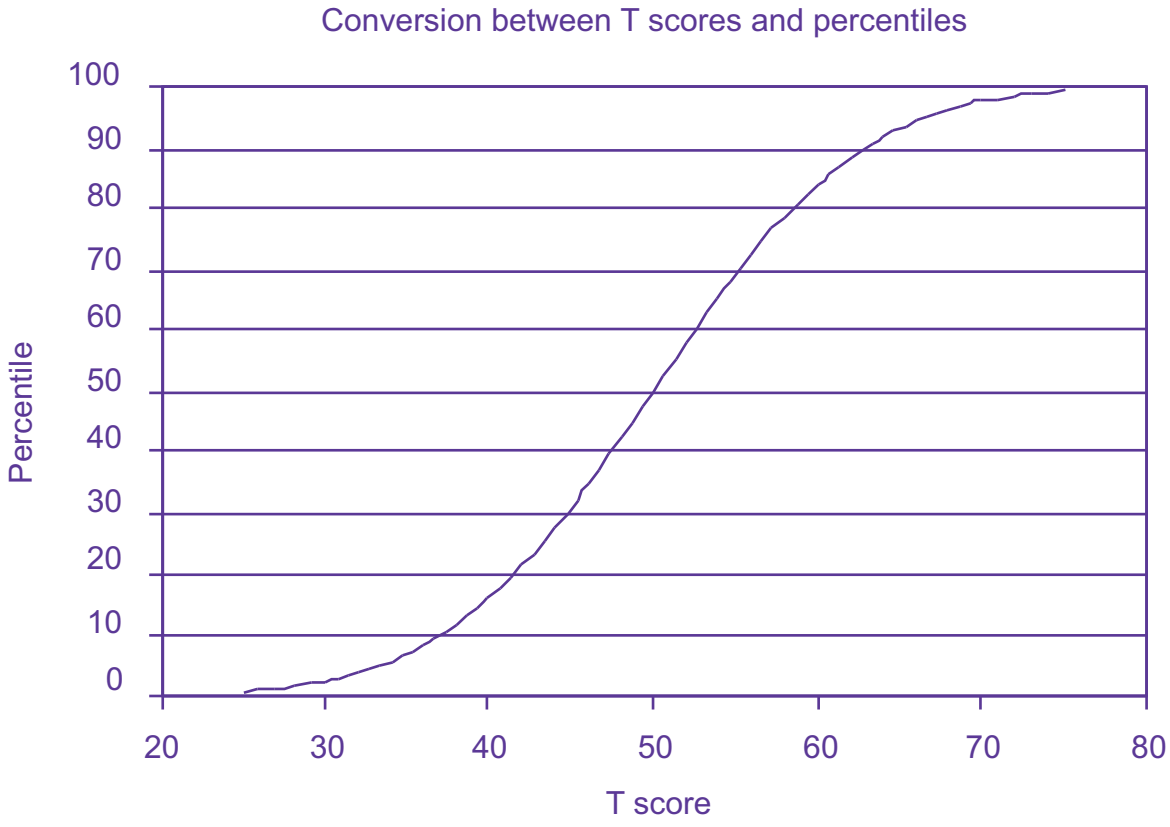
T score	QCA
25	63
26	64
27	66
28	67
29	69
30	70
31	72
32	73
33	75
34	76
35	78
36	79
37	81
38	82
39	84
40	85
41	87

T score	QCA
42	88
43	90
44	91
45	93
46	94
47	96
48	97
49	99
50	100
51	102
52	103
53	105
54	106
55	108
56	109
57	111
58	112

T score	QCA
59	114
60	115
61	117
62	118
63	120
64	121
65	123
66	124
67	126
68	127
69	129
70	130
71	131
72	133
73	135
74	136
75	138

Conversion Chart





Age conversion tables

The purpose of the conversion tables is to allow teachers or researchers to get age corrected standardised scores. The PIPS standardised scores sent to schools have been standardised for the whole of the population. It is possible to provide special standardised scores, say for girls and boys, for those in different LEAs, or by age and so on. We have resisted the temptation to give standardised scores for all the sub-groups. Instead we focus simply on age and the following tables allow the reader to read off standardised scores by age in months.

To read off an age standardised score take the pupil's T score and locate it in the vertical left hand column. Then locate the pupil's age in months on the horizontal row at the top. Where the age and the T score intersect is the pupil's age standardised score. As an example consider a pupil with a T score of 40 and an age of 4 years 5 months (53 months). The third table (Total) can be used to read off the age standardised score which is 42.

Early reading

standardised score before correction	age in months																	
	46	**47**	**48**	**49**	**50**	**51**	**52**	**53**	**54**	**55**	**56**	**57**	**58**	**59**	**60**	**61**	**62**	**63**
25	28	27	27	27	26	26	26	25	25	25	under 25							
26	29	29	29	28	28	27	27	27	26	26	26	25	25					
27	31	30	30	30	29	29	28	28	28	27	27	26	26	26	25	25	25	
28	31	31	31	30	30	30	29	29	28	28	28	27	27	26	26	26	25	25
29	32	32	32	31	31	30	30	30	29	29	28	28	28	27	27	26	26	26
30	34	33	33	33	32	32	31	31	31	30	30	29	29	29	28	28	27	27
31	35	34	34	34	33	33	32	32	32	31	31	30	30	29	29	29	28	28
32	36	36	35	35	34	34	33	33	32	32	32	31	31	30	30	29	29	28
33	37	37	36	36	35	35	35	34	34	33	33	32	32	31	31	30	30	29
34	39	38	38	37	37	36	36	35	35	34	34	33	33	32	31	31	30	30
35	40	39	39	38	38	37	37	36	36	35	35	34	33	33	32	32	31	31
36	41	41	40	40	39	38	38	37	37	36	36	35	34	34	33	33	32	32
37	43	42	42	41	40	40	39	39	38	37	37	36	35	35	34	34	33	32
38	44	43	43	42	41	41	40	39	39	38	38	37	36	36	35	34	34	33
39	45	45	44	43	43	42	41	41	40	39	39	38	37	37	36	35	35	34
40	47	46	46	45	44	43	43	42	41	40	40	39	38	38	37	36	35	35
41	48	47	47	46	45	44	44	43	42	41	41	40	39	38	38	37	36	35
42	49	48	47	47	46	45	44	44	43	42	41	41	40	39	38	37	37	36
43	50	49	49	48	47	46	45	45	44	43	42	42	41	40	39	38	38	37
44	52	51	50	49	48	48	47	46	45	44	44	43	42	41	40	40	39	38
45	53	52	51	50	50	49	48	47	46	46	45	44	43	42	42	41	40	39
46	54	53	52	51	51	50	49	48	47	46	46	45	44	43	42	42	41	40
47	55	54	53	52	51	50	50	49	48	47	46	46	45	44	43	42	42	41
48	56	55	54	53	52	52	51	50	49	48	48	47	46	45	44	44	43	42
49	57	56	55	54	54	53	52	51	50	50	49	48	47	46	45	45	44	43
50	58	57	56	56	55	54	53	52	51	51	50	49	48	47	46	46	45	44
51	59	58	57	57	56	55	54	53	53	52	51	50	49	48	48	47	46	45
52	60	59	59	58	57	56	55	55	54	53	52	51	51	50	49	48	47	46
53	61	60	59	59	58	57	56	55	55	54	53	52	51	51	50	49	48	48
54	62	61	60	59	59	58	57	56	56	55	54	53	53	52	51	50	50	49
55	63	62	61	60	60	59	58	57	57	56	55	54	54	53	52	51	51	50
56	64	63	62	61	61	60	59	58	58	57	56	55	55	54	53	52	51	51
57	65	64	63	62	62	61	60	59	59	58	57	56	56	55	54	53	53	52
58	65	65	64	63	62	62	61	60	60	59	58	57	57	56	55	55	54	53
59	66	66	65	64	64	63	62	61	61	60	59	59	58	57	56	56	55	54
60	68	67	66	66	65	64	63	63	62	61	60	60	59	58	57	57	56	55
61	69	68	67	67	66	65	64	64	63	62	61	61	60	59	58	58	57	56
62	70	69	69	68	67	66	66	65	64	63	62	62	61	60	59	58	58	57
63	72	71	70	69	68	67	67	66	65	64	63	63	62	61	60	59	59	58
64	73	72	71	70	69	69	68	67	66	65	64	64	63	62	61	60	59	59
65	74	73	72	72	71	70	69	68	67	66	66	65	64	63	62	61	60	60
66	75	74	73	73	72	71	70	69	68	67	67	66	65	64	63	62	61	61
67		75	74	74	73	72	71	70	69	69	68	67	66	65	64	64	63	62
68			75	75	74	73	72	71	70	70	69	68	67	66	65	65	64	63
69					75	74	73	72	71	71	70	69	68	67	67	66	65	64
70						75	74	74	73	72	71	70	70	69	68	67	66	65
71							75	75	74	73	72	71	71	70	69	68	67	66
72					over 75			75	75	74	73	72	72	71	70	69	68	68
73									75	75	74	73	72	72	71	70	69	69
74										75	75	74	73	73	72	71	71	70
75												75	75	74	73	72	72	71

90% confidence interval ± 3

Early maths

standardised score before correction	age in months																	
	46	**47**	**48**	**49**	**50**	**51**	**52**	**53**	**54**	**55**	**56**	**57**	**58**	**59**	**60**	**61**	**62**	**63**
25	29	28	28	28	27	27	26	26	25	25	under 25							
26	30	29	29	28	28	28	27	27	26	26	25	25	under 25					
27	31	30	30	30	29	29	28	28	27	27	26	26	25	25	under 25			
28	32	32	31	31	30	30	29	29	28	28	27	27	26	25	25	under 25		
29	34	34	33	33	32	32	31	30	30	29	29	28	27	27	26	26	25	under 25
30	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
31	37	36	36	35	34	34	33	32	32	31	30	30	29	28	28	27	27	26
32	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
33	39	38	38	37	36	36	35	34	34	33	32	31	31	30	29	29	28	27
34	41	40	39	39	38	37	36	36	35	34	33	33	32	31	30	30	29	28
35	42	41	41	40	39	38	37	37	36	35	34	33	33	32	31	30	30	29
36	43	42	41	41	40	39	38	37	37	36	35	34	33	33	32	31	30	30
37	44	43	43	42	41	40	39	39	38	37	36	35	35	34	33	32	31	31
38	46	45	44	43	42	41	41	40	39	38	37	37	36	35	34	33	33	32
39	47	46	45	44	43	43	42	41	40	39	38	38	37	36	35	34	33	33
40	48	47	46	46	45	44	43	42	41	40	40	39	38	37	36	35	35	34
41	49	48	48	47	46	45	44	43	42	42	41	40	39	38	37	37	36	35
42	50	50	49	48	47	46	45	44	44	43	42	41	40	39	38	38	37	36
43	52	51	50	49	48	47	46	45	45	44	43	42	41	40	39	38	37	37
44	53	52	51	50	49	48	47	46	45	45	44	43	42	41	40	39	38	37
45	54	53	52	51	50	49	48	48	47	46	45	44	43	42	41	40	39	39
46	55	54	53	52	51	50	50	49	48	47	46	45	44	43	42	41	40	40
47	56	55	54	53	52	51	50	50	49	48	47	46	45	44	43	42	41	40
48	57	56	55	54	53	52	51	50	50	49	48	47	46	45	44	43	42	41
49	58	57	56	55	54	53	52	51	51	50	49	48	47	46	45	44	43	42
50	59	58	57	56	55	54	53	53	52	51	50	49	48	47	46	45	44	43
51	60	59	58	57	56	56	55	54	53	52	51	50	49	48	47	46	45	44
52	61	60	59	58	57	56	56	55	54	53	52	51	50	49	48	47	46	45
53	62	61	60	59	58	57	56	56	55	54	53	52	51	50	49	48	47	46
54	63	62	61	61	60	59	58	57	56	55	54	53	52	51	50	49	48	47
55	65	64	63	62	61	60	59	58	57	56	55	54	53	52	51	51	50	49
56	66	65	64	63	62	61	60	59	58	57	56	55	54	53	53	52	51	50
57	67	66	65	64	63	62	61	60	59	58	57	56	56	55	54	53	52	51
58	68	67	66	65	64	63	62	61	60	60	59	58	57	56	55	54	53	52
59	69	68	67	66	65	64	63	62	61	60	59	58	57	57	56	55	54	53
60	70	69	68	67	66	65	64	63	62	61	60	59	58	57	56	55	54	54
61	71	70	69	68	67	66	65	64	63	63	62	61	60	59	58	57	56	55
62	73	72	71	70	69	68	67	66	65	64	63	62	61	60	59	58	57	56
63	73	72	72	71	70	69	68	67	66	65	64	63	62	61	60	59	58	57
64	74	73	72	71	70	69	68	67	66	66	65	64	63	62	61	60	59	58
65	over 75	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61	60	59
66	over 75	over 75	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61	60
67	over 75	over 75	over 75	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61
68	over 75	over 75	over 75	over 75	75	74	73	72	71	70	69	68	67	66	65	64	63	62
69	over 75	over 75	over 75	over 75	over 75	75	74	73	72	71	70	69	68	67	66	65	64	63
70	over 75	over 75	over 75	over 75	over 75	over 75	75	74	73	72	71	70	69	68	67	66	65	65
71	over 75	over 75	over 75	over 75	over 75	over 75	over 75	75	74	73	72	72	71	70	69	68	67	66
72	over 75	over 75	over 75	over 75	over 75	over 75	over 75	over 75	75	74	73	72	71	70	70	69	68	67
73	over 75	over 75	over 75	over 75	over 75	over 75	over 75	over 75	over 75	75	75	74	73	72	71	70	69	68
74	over 75	over 75	over 75	over 75	over 75	over 75	over 75	over 75	over 75	over 75	***	***	***	***	***	***	***	***
75	over 75	over 75	over 75	over 75	over 75	over 75	over 75	over 75	over 75	over 75	over 75	75	74	74	73	72	71	70

90% confidence interval ± 5

Total

standardised score before correction	age in months																	
	46	**47**	**48**	**49**	**50**	**51**	**52**	**53**	**54**	**55**	**56**	**57**	**58**	**59**	**60**	**61**	**62**	**63**
25	29	28	28	27	27	27	26	26	25	25	under 25							
26	30	29	29	28	28	28	27	27	26	26	25	25	25	under 25				
27	31	31	30	30	29	29	28	28	27	27	26	26	25	25	under 25			
28	33	32	32	31	30	30	29	29	28	28	27	27	26	26	25	25	under 25	
29	34	34	33	32	32	31	31	30	30	29	28	28	27	27	26	26	25	under 25
30	35	35	34	33	33	32	32	31	31	30	29	29	28	28	27	27	26	25
31	36	36	35	35	34	33	33	32	32	31	30	30	29	28	28	27	27	26
32	38	37	36	36	35	35	34	33	33	32	31	31	30	29	29	28	28	27
33	39	38	38	37	36	36	35	34	34	33	32	32	31	31	30	29	29	28
34	40	39	39	38	37	37	36	35	35	34	34	33	32	32	31	30	30	29
35	41	41	40	39	39	38	37	37	36	35	34	34	33	32	32	31	30	30
36	43	42	41	40	40	39	38	38	37	36	35	35	34	33	33	32	31	30
37	44	43	42	42	41	40	39	39	38	37	36	36	35	34	33	33	32	31
38	45	44	44	43	42	41	41	40	39	38	37	37	36	35	34	33	33	32
39	47	46	45	44	43	43	42	41	40	39	38	38	37	36	35	34	34	33
40	48	47	46	45	44	44	43	42	41	40	39	39	38	37	36	35	35	34
41	49	48	47	46	45	45	44	43	42	41	40	40	39	38	37	36	35	34
42	50	49	48	47	47	46	45	44	43	42	41	41	40	39	38	37	36	35
43	51	50	49	49	48	47	46	45	44	43	42	42	41	40	39	38	37	36
44	52	52	51	50	49	48	47	46	45	44	44	43	42	41	40	39	38	37
45	54	53	52	51	50	49	48	47	46	45	45	44	43	42	41	40	39	38
46	55	54	53	52	51	50	49	48	48	47	46	45	44	43	42	41	40	39
47	56	55	54	53	52	51	51	50	49	48	47	46	45	44	43	42	41	40
48	57	56	55	54	53	52	51	51	50	49	48	47	46	45	44	43	42	41
49	58	57	56	55	55	54	53	52	51	50	49	48	47	46	45	44	43	42
50	59	58	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43
51	60	59	58	57	56	56	55	54	53	52	51	50	49	48	47	46	45	44
52	61	60	59	58	57	57	56	55	54	53	52	51	50	49	48	47	46	46
53	62	61	60	59	58	58	57	56	55	54	53	52	51	50	49	49	48	47
54	63	62	61	60	59	59	58	57	56	55	54	53	52	51	51	50	49	48
55	64	63	62	61	61	60	59	58	57	56	55	54	53	53	52	51	50	49
56	65	64	63	62	61	61	60	59	58	57	56	55	55	54	53	52	51	50
57	66	65	64	63	62	62	61	60	59	58	57	56	56	55	54	53	52	51
58	67	66	65	64	63	63	62	61	60	59	58	58	57	56	55	54	53	53
59	68	67	66	65	64	64	63	62	61	60	59	59	58	57	56	55	54	54
60	69	68	67	66	65	65	64	63	62	61	60	60	59	58	57	56	55	55
61	70	69	68	67	66	66	65	64	63	62	61	61	60	59	58	57	56	56
62	71	70	69	68	68	67	66	65	64	63	63	62	61	60	59	58	57	57
63	72	71	71	70	69	68	67	66	65	65	64	63	62	61	60	59	58	58
64	74	73	72	71	70	69	68	67	67	66	65	64	63	62	61	60	59	58
65	75	74	73	72	71	70	69	69	68	67	66	65	64	63	62	61	60	59
66	over 75	75	74	73	72	72	71	70	69	68	67	66	65	64	63	62	61	61
67	over 75	over 75	75	75	74	73	72	71	70	69	68	67	66	65	64	63	63	62
68	over 75	over 75	over 75	75	75	74	73	72	71	70	69	68	67	66	66	65	64	63
69	over 75	over 75	over 75	over 75	over 75	75	74	73	72	71	70	69	68	67	67	66	65	64
70	over 75	over 75	over 75	over 75	over 75	over 75	75	74	73	72	71	70	69	68	68	67	66	65
71	over 75	over 75	over 75	over 75	over 75	over 75	over 75	75	74	73	72	71	70	70	69	68	67	66
72	over 75	over 75	over 75	over 75	over 75	over 75	over 75	over 75	75	74	73	72	72	71	70	69	68	67
73	over 75	over 75	over 75	over 75	over 75	over 75	over 75	over 75	over 75	75	74	73	73	72	71	70	70	69
74	over 75	over 75	over 75	over 75	over 75	over 75	over 75	over 75	over 75	over 75	75	74	74	73	72	71	71	70
75	over 75	over 75	over 75	over 75	over 75	over 75	over 75	over 75	over 75	over 75	over 75	75	75	74	73	73	72	71

90% confidence interval ± 2

Further help

If you require any further clarification on anything contained in this booklet, or on any other aspect of the PIPS Project, please contact us.

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