



NFER

Classroom

maths

year

3

supplement to
teacher guide
summer

3

maths • teacher guide • year 3 • supplement • summer

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First published 2016

by the National Foundation for Educational Research,
The Mere, Upton Park, Slough, Berkshire SL1 2DQ

www.nfer.ac.uk

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ISBN: 978-1-911039-07-5

To access the score converter and question grid spreadsheets, you will need to go to our secure School Portal on the NFER's website:

www.nfer.ac.uk/portal

and then enter your

NFER Number:

Project Number:

Unique Password:

(please write them in above for quick reference).

The letter and despatch notes that accompanied the test materials are pre-populated with the details of the numbers and password.

If you have lost the letter and despatch notes, the portal website has links where you can request your details again.

Using the outcomes of the test

This section provides teachers with information to convert pupils' test scores into more useful measures of their attainment.

If the Year 3 mathematics test is undertaken and marked in line with the guidance in this booklet, then both a standardised score and an age standardised score can be derived from a pupil's test score.

Standardised scores enable a comparison to be made between the performance of a pupil and that of other pupils who have taken the test. In the case of the NFER tests, age standardised scores mean that the comparison is with pupils who have the same month of birth.

The starting point for both of these outcomes is to total a pupil's marks from the three mathematics booklets. A box is provided on the front cover of each test booklet to assist in this. This gives each pupil's total score or 'raw' score.

In order to obtain reliable outcomes, you should administer the test according to the guidance given in the teacher guide. It is particularly important that you observe the time limits given in the test instructions, and mark questions strictly according to the mark scheme. If not, the information derived from this section cannot be used reliably.

If you wish to record and explore patterns of performance on the test across your whole class, you may find it helpful to complete a question grid. For each question, the question grid shows the average mark of pupils in the standardisation sample. It also shows which questions address each of the elements of the Programme of Study. Completing pupils' scores in the question grid will enable you to compare performance on different areas of the Programme of Study with a nationally representative sample. This is available from the following website, which will require online registration for access:

www.nfer.ac.uk/portal

Standardised scores

Standardised scores enable a comparison to be made between the performance of a pupil and that of other pupils who have taken the same test. The average standardised score is set at 100, based on the performance of a nationally representative sample. About two-thirds of pupils will have standardised scores between 85 and 115 and scores within this range can be broadly described as 'average'.

Almost all pupils fall within the range 70 to 140, so scores outside this range can be regarded as exceptional. These exceptional scores are marked with *** on the charts opposite as standardised scores cannot be calculated with the necessary statistical reliability. If an exact score is needed, for example to calculate an average score for the class, 69 or 141 should be used as appropriate for these pupils.

For example, a teacher administered the test to her class. One pupil, Lucy, achieved a raw score of 45 on the test, giving her a standardised score of 104. The teacher could then say that Lucy achieved an average score on the test.

It is worth noting here that the scaled score of 100 defined by the Department for Education as the national expectation at the end of Key Stage 2 is **not the same as, nor equivalent to, a standardised score of 100 on these tests**. On these tests, a standardised score of 100 represents the average performance, based on a normal distribution, of the sample of pupils on which the tests were standardised. At the end of Key Stage 2, the scaled score of 100 represents the 'expected standard' and is not the average.

In order to save time and ensure accuracy, you can download a spreadsheet which will calculate each pupil's standardised score if you enter their raw score. This spreadsheet is available from the following website: www.nfer.ac.uk/portal

Raw score	Standardised score
0	***
1	***
2	***
3	***
4	***
5	70
6	72
7	74
8	76
9	77
10	78
11	79
12	81
13	82
14	83
15	84
16	85
17	86
18	86
19	87
20	88
21	89
22	89
23	90
24	91
25	91
26	92

Raw score	Standardised score
27	93
28	93
29	94
30	95
31	95
32	96
33	97
34	97
35	98
36	98
37	99
38	100
39	100
40	101
41	101
42	102
43	102
44	103
45	104
46	105
47	105
48	106
49	107
50	107
51	108
52	109
53	109

Raw score	Standardised score
54	110
55	111
56	111
57	112
58	113
59	114
60	115
61	116
62	117
63	118
64	119
65	120
66	121
67	122
68	123
69	125
70	126
71	128
72	130
73	132
74	134
75	137
76	140
77	***
78	***
79	***
80	***

Confidence bands

Confidence bands are used to show the extent of the margin of error in the standardised scores. In other words, they show how accurately the test measures pupils' ability in mathematics.

The margin of error is simply a statistical estimate, based on the fact that tests can only sample the particular area of learning which they assess and that therefore the score a pupil achieves may vary within a few points of their 'true score'. To indicate how wide this margin of error is likely to be, a '90 per cent confidence band' has been calculated. This means that you can have 90 per cent certainty that the true score lies within the confidence band.

The table below gives the numbers that should be subtracted from and added to pupils' standardised scores at different score points to form the 90 per cent confidence bands.

Standardised score	To form 90% confidence band:	
	subtract	add
70, 72, 74, 76 - 79, 81 - 86	4	6
87 - 89	4	5
90 - 110	5	5
111 - 113	5	4
114 - 123, 125, 126, 128, 130, 132, 134	6	4
137, 140	7	3

Take three pupils, Rachel, Nathan and David, with standardised scores of 101, 99 and 125 respectively. For Rachel, with a standardised score of 101 on this test, the 90 per cent confidence band is plus or minus 5. Therefore, you can be 90 per cent certain (there is a nine-out-of-ten chance) that Rachel's true score is between 96 and 106.

Both Nathan, who has a standardised score of 99, and Rachel are working at about the average for their age. Nathan's true score is between 94 and 104.

However, David, with a standardised score of 125, achieved an above average score on the test and has a 90 per cent likelihood of having a true score between 119 and 129.

For high and low scores, the confidence bands are asymmetrical (they tend to be pulled towards the average test score).

Age standardised scores

Age standardised scores take into account a pupil's age in years and months at the time of sitting the test, in order that his or her performance can be compared with the performance of other pupils of the same age in a nationally representative sample. The age standardisation that has been undertaken means that these tests can be administered at different points in the school year and comparative information still be obtained. The age standardised scores in this booklet cover the age range 7 years 0 months to 8 years 11 months. If you have decided to give the test to pupils outside this range, you will not be able to use the table. You will still, though, be able to calculate an indication of attainment of age-related expectations on the new National Curriculum and also standardised scores.

In order to save time and ensure accuracy, you can download a spreadsheet, which will calculate each pupil's age standardised score if you enter their date of birth and date of test, from www.nfer.ac.uk/portal

If you have not downloaded the spreadsheet, you should convert the total score into an age standardised score as follows:

- list the ages of all pupils in your class in years and completed months at the time of testing
- for each pupil, locate his or her age in years and months along the top of the table
- locate the pupil's total score down the left side of the table
- read off the age standardised score from where the row and column meet.

The average age standardised score is set at 100, based on the performance of a nationally representative sample. About two-thirds of pupils will have age standardised scores between 85 and 115 and scores within this range can broadly be described as 'average'. Almost all pupils fall within the range 70 to 140, so scores outside this range can be regarded as exceptional. These exceptional scores are marked with *** on the chart on pages 10-13 as age standardised scores cannot be calculated with the necessary statistical reliability. If an exact score is needed, for example to calculate an average for the class, 69 or 141 should be used as appropriate for these pupils.

Confidence bands

Confidence bands are used to show the extent of the margin of error in the age standardised scores. In other words, how accurately the test measures the pupils' ability in mathematics.

The margin of error is simply a statistical estimate, based on the fact that tests can only sample the particular area of learning which they assess and therefore the score a pupil achieves may vary within a few points of their 'true score'. To indicate how wide this margin of error is likely to be, a '90 per cent confidence band' has been calculated. This means that you can have 90 per cent certainty that the true score lies within the confidence band.

The table below gives the numbers that should be added to and subtracted from pupils' age standardised scores in different score ranges to form the 90% confidence bands.

Age standardised score range	To form 90% confidence band:	
	subtract	add
70 - 86	4	6
87 - 89	4	5
90 - 110	5	5
111 - 113	5	4
114 - 134	6	4
135 - 136	6	3
137 - 140	7	3

Take four pupils, Hannah, Rachel, Ali and Stephen, with age standardised scores of 100, 99, 103 and 122 respectively. For Hannah, with an age standardised score of 100 on this test, the 90 per cent confidence band is plus or minus 5. Therefore, you can be 90 per cent certain (there is a nine-out-of-ten chance) that Hannah's true score is between 95 and 105.

Both Rachel, who has an age standardised score of 99, and Ali, who has an age standardised score of 103, are working at about the average for their age. Rachel's true score is between 94 and 104, and Ali's is between 98 and 108. Hannah's score of 100 also indicates that she is working at about the average for her age.

However, Stephen, with an age standardised score of 122, achieved an above average score on the test and has a 90 per cent likelihood of having a true score between 116 and 126.

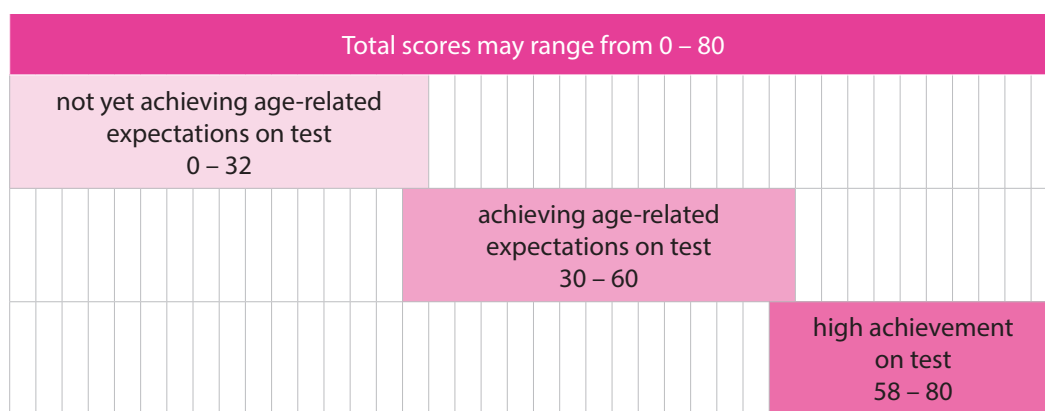
For high and low scores, the confidence bands are asymmetrical (they tend to be pulled towards the average test score).

Age-related expectations in the National Curriculum

The result of the test contributes to the judgement of whether a pupil is meeting the age-related expectations in the National Curriculum. A series of standard setting meetings involving over 100 teachers has provided another source of evidence about the level of challenge in the new tests in relation to the National Curriculum expectations.

Clearly the tests can only cover certain areas from the National Curriculum. Areas such as mental arithmetic skills cannot be assessed due to the nature of a written test.

Test outcomes should inform rather than determine teachers’ own assessment decisions, and therefore a range of marks is suggested in the table below. Some pupils perform better in formal assessments than their day to day work suggests, whilst others underperform. In this case, it is suggested that teachers consider the overall performance of pupils who score between 30 and 32 marks on this test before deciding if they have met age-related expectations.



	total score
Not yet achieving age-related expectations	0 – 32
Achieving age-related expectations	30 – 60
High achievement	58 – 80

Age standardised scores

Age in years and completed months													
Total score	7.00	7.01	7.02	7.03	7.04	7.05	7.06	7.07	7.08	7.09	7.10	7.11	Total score
0	***	***	***	***	***	***	***	***	***	***	***	***	0
1	***	***	***	***	***	***	***	***	***	***	***	***	1
2	70	***	***	***	***	***	***	***	***	***	***	***	2
3	74	73	73	72	71	71	70	70	***	***	***	***	3
4	77	76	76	75	75	74	73	73	72	71	71	70	4
5	79	79	78	78	77	76	76	75	75	74	73	73	5
6	82	81	80	80	79	78	78	77	77	76	75	75	6
7	83	83	82	81	81	80	79	79	78	78	77	76	7
8	85	84	84	83	82	82	81	80	80	79	79	78	8
9	87	86	85	84	84	83	82	82	81	81	80	79	9
10	88	87	87	86	85	84	84	83	82	82	81	81	10
11	89	89	88	87	87	86	85	84	84	83	82	82	11
12	91	90	89	88	88	87	86	86	85	84	83	83	12
13	92	91	90	90	89	88	88	87	86	85	85	84	13
14	93	92	91	91	90	89	89	88	87	86	86	85	14
15	94	93	92	92	91	90	89	89	88	87	87	86	15
16	95	94	93	93	92	91	90	90	89	88	88	87	16
17	96	95	94	94	93	92	91	91	90	89	89	88	17
18	97	96	95	95	94	93	92	92	91	90	89	89	18
19	98	97	96	95	95	94	93	92	92	91	90	89	19
20	98	98	97	96	95	95	94	93	92	92	91	90	20
21	99	98	98	97	96	95	95	94	93	93	92	91	21
22	100	99	99	98	97	96	96	95	94	93	93	92	22
23	101	100	99	99	98	97	96	96	95	94	93	93	23
24	101	101	100	99	99	98	97	96	96	95	94	93	24
25	102	101	101	100	99	99	98	97	96	96	95	94	25
26	103	102	101	101	100	99	99	98	97	96	96	95	26
27	104	103	102	101	101	100	99	98	98	97	96	95	27
28	104	104	103	102	101	101	100	99	98	98	97	96	28
29	105	104	103	103	102	101	101	100	99	98	98	97	29
30	106	105	104	103	103	102	101	101	100	99	98	98	30
31	107	106	105	104	103	103	102	101	100	100	99	98	31
32	107	106	106	105	104	103	102	102	101	100	100	99	32
33	108	107	106	106	105	104	103	102	102	101	100	100	33
34	108	108	107	106	105	105	104	103	102	102	101	100	34
35	109	108	108	107	106	105	104	104	103	102	101	101	35
36	110	109	108	107	107	106	105	104	104	103	102	101	36
37	110	109	109	108	107	107	106	105	104	103	103	102	37
38	111	110	109	109	108	107	107	106	105	104	103	103	38
39	111	111	110	109	109	108	107	106	106	105	104	103	39
40	112	111	111	110	109	108	108	107	106	105	105	104	40

Age in years and completed months													
Total score	8.00	8.01	8.02	8.03	8.04	8.05	8.06	8.07	8.08	8.09	8.10	8.11	Total score
0	***	***	***	***	***	***	***	***	***	***	***	***	0
1	***	***	***	***	***	***	***	***	***	***	***	***	1
2	***	***	***	***	***	***	***	***	***	***	***	***	2
3	***	***	***	***	***	***	***	***	***	***	***	***	3
4	70	***	***	***	***	***	***	***	***	***	***	***	4
5	72	71	71	70	70	***	***	***	***	***	***	***	5
6	74	73	73	72	72	71	70	70	***	***	***	***	6
7	76	75	75	74	73	73	72	72	71	70	70	***	7
8	77	77	76	75	75	74	74	73	72	72	71	71	8
9	79	78	77	77	76	76	75	74	74	73	73	72	9
10	80	79	79	78	77	77	76	76	75	74	74	73	10
11	81	80	80	79	79	78	77	77	76	75	75	74	11
12	82	82	81	80	80	79	78	78	77	77	76	75	12
13	83	83	82	81	81	80	79	79	78	77	77	76	13
14	84	84	83	82	82	81	80	80	79	78	78	77	14
15	85	84	84	83	82	82	81	81	80	79	79	78	15
16	86	85	85	84	83	83	82	81	81	80	79	79	16
17	87	86	86	85	84	84	83	82	82	81	80	80	17
18	88	87	87	86	85	84	84	83	82	82	81	80	18
19	89	88	87	87	86	85	84	84	83	83	82	81	19
20	90	89	88	88	87	86	85	85	84	83	83	82	20
21	90	90	89	88	88	87	86	85	85	84	83	83	21
22	91	90	90	89	88	88	87	86	85	85	84	83	22
23	92	91	90	90	89	88	88	87	86	85	85	84	23
24	93	92	91	90	90	89	88	88	87	86	85	85	24
25	93	93	92	91	90	90	89	88	88	87	86	85	25
26	94	93	93	92	91	90	90	89	88	88	87	86	26
27	95	94	93	93	92	91	90	90	89	88	88	87	27
28	95	95	94	93	92	92	91	90	90	89	88	88	28
29	96	95	95	94	93	92	92	91	90	90	89	88	29
30	97	96	95	95	94	93	92	92	91	90	89	89	30
31	97	97	96	95	95	94	93	92	92	91	90	89	31
32	98	97	97	96	95	94	94	93	92	91	91	90	32
33	99	98	97	96	96	95	94	94	93	92	91	91	33
34	99	99	98	97	96	96	95	94	93	93	92	91	34
35	100	99	99	98	97	96	96	95	94	93	93	92	35
36	101	100	99	98	98	97	96	95	95	94	93	92	36
37	101	101	100	99	98	98	97	96	95	95	94	93	37
38	102	101	100	100	99	98	97	97	96	95	95	94	38
39	102	102	101	100	100	99	98	97	96	96	95	94	39
40	103	102	102	101	100	99	99	98	97	96	96	95	40

continued overleaf ...

Age standardised scores (continued)

Age in years and completed months													
Total score	7.00	7.01	7.02	7.03	7.04	7.05	7.06	7.07	7.08	7.09	7.10	7.11	Total score
41	113	112	111	110	110	109	108	108	107	106	105	104	41
42	114	113	112	111	110	110	109	108	108	107	106	105	42
43	114	113	112	112	111	110	109	109	108	107	107	106	43
44	115	114	113	112	112	111	110	109	109	108	107	107	44
45	116	115	114	113	112	111	111	110	109	109	108	107	45
46	116	116	115	114	113	112	111	111	110	109	108	108	46
47	117	116	116	115	114	113	112	111	110	110	109	108	47
48	118	117	116	116	115	114	113	112	111	110	110	109	48
49	118	118	117	116	115	114	114	113	112	111	110	110	49
50	119	118	118	117	116	115	114	113	112	112	111	110	50
51	120	119	118	118	117	116	115	114	113	112	112	111	51
52	120	120	119	118	117	117	116	115	114	113	112	112	52
53	121	120	120	119	118	117	117	116	115	114	113	112	53
54	122	121	120	120	119	118	117	117	116	115	114	113	54
55	123	122	121	120	120	119	118	117	117	116	115	114	55
56	123	123	122	121	120	120	119	118	117	117	116	115	56
57	124	123	123	122	121	120	120	119	118	117	117	116	57
58	125	124	124	123	122	121	120	120	119	118	117	117	58
59	126	125	124	124	123	122	121	120	120	119	118	117	59
60	127	126	125	124	124	123	122	121	120	120	119	118	60
61	128	127	126	125	125	124	123	122	121	121	120	119	61
62	129	128	127	126	125	125	124	123	122	121	121	120	62
63	130	129	128	127	126	126	125	124	123	122	122	121	63
64	131	130	129	128	127	127	126	125	124	123	123	122	64
65	132	131	130	129	129	128	127	126	125	125	124	123	65
66	133	132	131	130	130	129	128	127	126	126	125	124	66
67	134	133	132	132	131	130	129	128	128	127	126	125	67
68	135	135	134	133	132	131	131	130	129	128	127	127	68
69	137	136	135	134	133	133	132	131	130	129	129	128	69
70	138	137	137	136	135	134	133	133	132	131	130	129	70
71	140	139	138	137	137	136	135	134	133	133	132	131	71
72	***	***	140	139	138	138	137	136	135	134	134	133	72
73	***	***	***	***	140	139	139	138	137	136	135	135	73
74	***	***	***	***	***	***	***	140	139	139	138	137	74
75	***	***	***	***	***	***	***	***	***	***	140	140	75
76	***	***	***	***	***	***	***	***	***	***	***	***	76
77	***	***	***	***	***	***	***	***	***	***	***	***	77
78	***	***	***	***	***	***	***	***	***	***	***	***	78
79	***	***	***	***	***	***	***	***	***	***	***	***	79
80	***	***	***	***	***	***	***	***	***	***	***	***	80

Age in years and completed months													
Total score	8.00	8.01	8.02	8.03	8.04	8.05	8.06	8.07	8.08	8.09	8.10	8.11	Total score
41	104	103	102	101	101	100	99	99	98	97	96	96	41
42	104	104	103	102	101	101	100	99	98	98	97	96	42
43	105	104	103	103	102	101	101	100	99	98	98	97	43
44	106	105	104	103	103	102	101	100	100	99	98	97	44
45	106	106	105	104	103	102	102	101	100	100	99	98	45
46	107	106	106	105	104	103	102	102	101	100	100	99	46
47	108	107	106	105	105	104	103	102	101	101	100	99	47
48	108	108	107	106	105	104	104	103	102	101	101	100	48
49	109	108	108	107	106	105	104	104	103	102	101	101	49
50	110	109	108	107	107	106	105	104	103	103	102	101	50
51	110	109	109	108	107	107	106	105	104	103	103	102	51
52	111	110	109	109	108	107	107	106	105	104	103	103	52
53	112	111	110	109	109	108	107	106	106	105	104	103	53
54	112	111	111	110	109	109	108	107	106	106	105	104	54
55	113	112	111	111	110	109	109	108	107	106	106	105	55
56	114	113	112	111	111	110	109	109	108	107	106	106	56
57	115	114	113	112	111	111	110	109	109	108	107	106	57
58	116	115	114	113	112	111	111	110	109	109	108	107	58
59	117	116	115	114	113	112	112	111	110	109	109	108	59
60	117	117	116	115	114	113	112	112	111	110	109	109	60
61	118	118	117	116	115	114	113	112	112	111	110	109	61
62	119	118	118	117	116	115	115	114	113	112	111	110	62
63	120	119	119	118	117	116	116	115	114	113	112	111	63
64	121	120	120	119	118	117	117	116	115	114	113	112	64
65	122	121	121	120	119	118	118	117	116	115	114	113	65
66	123	122	122	121	120	119	119	118	117	116	116	115	66
67	124	124	123	122	121	120	120	119	118	118	117	116	67
68	126	125	124	123	123	122	121	120	119	119	118	117	68
69	127	126	126	125	124	123	122	122	121	120	119	118	69
70	129	128	127	126	125	125	124	123	122	121	121	120	70
71	130	129	129	128	127	126	125	125	124	123	122	121	71
72	132	131	130	130	129	128	127	126	126	125	124	123	72
73	134	133	132	131	131	130	129	128	128	127	126	125	73
74	136	135	135	134	133	132	131	131	130	129	128	127	74
75	139	138	137	136	136	135	134	133	132	132	131	130	75
76	***	***	140	139	139	138	137	136	136	135	134	133	76
77	***	***	***	***	***	***	***	140	140	139	138	137	77
78	***	***	***	***	***	***	***	***	***	***	***	***	78
79	***	***	***	***	***	***	***	***	***	***	***	***	79
80	***	***	***	***	***	***	***	***	***	***	***	***	80



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