



NFER

Classroom

maths

year

3

supplement to
teacher guide
autumn

3

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To access the score converter and the 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 the teacher guide, then both a standardised score and an age standardised score can be derived from a pupil's test score.

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

In order to obtain reliable outcomes, you should administer the test according to the guidance given in this booklet. 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. Such comparisons can be useful for grouping your class by ability and for identifying those pupils in need of targeted interventions. 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'.

For example, a teacher administered the test to her class. One pupil, Lucy, achieved a raw score of 32 on the test, giving her a standardised score of 103. The teacher could then say that Lucy achieved an average score on the test.

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 on page 5 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.

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 DfE's 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 and age standardised score if you enter their date of birth and date of test. This spreadsheet is available from the following website:

www.nfer.ac.uk/portal

Raw score	Standardised score
0	***
1	***
2	***
3	72
4	75
5	77
6	78
7	80
8	81
9	83
10	84
11	85
12	87
13	88
14	89
15	90
16	91
17	92
18	93
19	94
20	95
21	96
22	97
23	97
24	98
25	99
26	100
27	100
28	101
29	101
30	102

Raw score	Standardised score
31	103
32	103
33	104
34	105
35	105
36	106
37	107
38	107
39	108
40	108
41	109
42	110
43	110
44	111
45	111
46	112
47	112
48	113
49	114
50	115
51	115
52	116
53	117
54	118
55	118
56	119
57	120
58	121
59	121
60	122
61	123

Raw score	Standardised score
62	124
63	125
64	126
65	127
66	128
67	129
68	131
69	132
70	134
71	135
72	137
73	139
74	***
75	***
76	***
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 range	To form 90% confidence band:	
	subtract	add
72, 75, 77, 78, 80, 81, 83–85, 87	5	6
88–112	5	5
113–129, 131	6	5
132, 134, 135, 137, 139	6	4

Take three pupils, Rachel, Nathan and David, with standardised scores of 101, 99 and 124 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 124, achieved an above average score on the test and has a 90 per cent likelihood of having a true score between 118 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 7 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, however, be able to calculate standardised scores.

In order to save time and ensure accuracy, you can download a spreadsheet, which will calculate each pupil's standardised and 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 on pages 10–13
- 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 table 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.

As mentioned for standardised scores, 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, an age standardised score of 100 on these tests**. On these tests, an age standardised score of 100 represents the average performance, based on a normal distribution, of the sample of pupils of a specific age on which the tests were standardised. At the end of Key Stage 2, the DfE's scaled score of 100 represents the 'expected standard' and is not the average.

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 per cent confidence bands.

Age standardised score range	To form 90% confidence band:	
	subtract	add
70–87	5	6
88–112	5	5
113–131	6	5
132–140	6	4

Take three pupils, Hannah, Ali and Stephen, with age standardised scores of 100, 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 Ali, who has an age standardised score of 103, and Hannah are working at about the average for their age. Ali's true score is between 98 and 108.

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 127.

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

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Age standardised scores

Total score	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		
0	***	***	***	***	***	***	***	***	***	***	***	0
1	***	***	***	***	***	***	***	***	***	***	***	1
2	73	73	72	72	71	70	70	***	***	***	2	
3	77	76	76	75	74	74	73	73	72	71	3	
4	79	79	78	77	77	76	76	75	74	74	4	
5	82	81	80	79	79	78	78	77	76	76	5	
6	84	83	82	81	81	80	79	79	78	77	6	
7	86	85	84	83	82	82	81	80	79	79	7	
8	88	87	86	85	84	83	82	82	81	80	8	
9	90	89	87	87	86	85	84	83	82	82	9	
10	91	90	89	88	87	86	85	84	84	83	10	
11	92	92	91	90	89	88	87	86	85	84	11	
12	94	93	92	91	90	89	88	87	86	85	12	
13	95	94	93	92	91	90	90	88	87	86	13	
14	96	95	94	93	92	91	91	90	89	87	14	
15	97	96	95	94	93	92	92	91	90	89	15	
16	98	97	96	95	94	93	93	92	91	90	16	
17	99	98	97	96	95	94	94	93	92	91	17	
18	100	99	98	97	96	95	94	94	93	92	18	
19	101	100	99	98	97	96	95	94	93	93	19	
20	102	101	100	99	98	97	96	95	94	93	20	
21	102	102	101	100	99	98	97	96	95	94	21	
22	103	102	101	100	99	98	98	97	96	95	22	
23	104	103	102	101	100	99	98	97	97	96	23	
24	105	104	103	102	101	100	99	98	97	97	24	
25	106	105	104	103	102	101	100	99	98	97	25	
26	106	105	104	103	103	102	101	100	99	98	26	
27	107	106	105	104	103	102	101	100	100	99	27	
28	108	107	106	105	104	103	102	101	100	99	28	
29	109	108	107	106	105	104	103	102	101	100	29	
30	109	108	107	106	105	104	103	103	102	101	30	
31	110	109	108	107	106	105	104	103	102	101	31	
32	111	110	109	108	107	106	105	104	103	102	32	
33	111	110	109	108	107	106	106	105	104	103	33	
34	112	111	110	109	108	107	106	105	104	103	34	
35	112	112	111	110	109	108	107	106	105	104	35	
36	113	112	111	110	109	109	108	107	106	105	36	
37	114	113	112	111	110	109	108	107	106	105	37	
38	114	114	113	112	111	110	109	108	107	106	38	
39	115	114	113	112	111	110	110	109	108	107	39	
40	116	115	114	113	112	111	110	109	108	107	40	

Age in years and completed months											
Total score	7.10	7.11	8.00	8.01	8.02	8.03	8.04	8.05	8.06	8.07	Total score
0	***	***	***	***	***	***	***	***	***	***	0
1	***	***	***	***	***	***	***	***	***	***	1
2	***	***	***	***	***	***	***	***	***	***	2
3	71	70	70	***	***	***	***	***	***	***	3
4	73	73	72	71	71	70	70	***	***	***	4
5	75	75	74	73	73	72	72	71	70	70	5
6	77	76	76	75	74	74	73	73	72	71	6
7	78	78	77	76	76	75	75	74	73	73	7
8	79	79	78	78	77	76	76	75	75	74	8
9	81	80	79	79	78	77	77	76	76	75	9
10	82	81	80	80	79	78	78	77	77	76	10
11	83	82	82	81	80	79	79	78	78	77	11
12	84	84	83	82	81	80	80	79	78	78	12
13	85	85	84	83	82	81	81	80	79	79	13
14	87	86	85	84	83	82	82	81	80	79	14
15	88	87	86	85	84	83	83	82	81	80	15
16	89	88	87	86	85	84	83	83	82	81	16
17	90	89	88	87	86	85	84	83	83	82	17
18	91	90	89	88	87	86	85	84	83	83	18
19	92	91	90	89	88	87	86	85	84	83	19
20	93	92	91	90	89	88	87	86	85	84	20
21	93	92	92	91	90	89	88	87	86	85	21
22	94	93	92	91	91	90	89	87	87	86	22
23	95	94	93	92	91	90	90	88	87	86	23
24	96	95	94	93	92	91	90	89	88	87	24
25	96	96	95	94	93	92	91	90	89	88	25
26	97	96	95	94	93	93	92	91	90	89	26
27	98	97	96	95	94	93	92	92	91	90	27
28	98	97	97	96	95	94	93	92	91	90	28
29	99	98	97	96	96	95	94	93	92	91	29
30	100	99	98	97	96	95	94	93	93	92	30
31	100	99	98	98	97	96	95	94	93	92	31
32	101	100	99	98	97	97	96	95	94	93	32
33	102	101	100	99	98	97	96	95	95	94	33
34	102	102	101	100	99	98	97	96	95	94	34
35	103	102	101	100	99	98	97	97	96	95	35
36	104	103	102	101	100	99	98	97	96	96	36
37	104	103	103	102	101	100	99	98	97	96	37
38	105	104	103	102	101	100	99	98	98	97	38
39	106	105	104	103	102	101	100	99	98	97	39
40	106	105	104	103	103	102	101	100	99	98	40

continued overleaf ...

Age standardised scores (continued)

Total score	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	
41	116	115	115	114	113	112	111	110	109	108	41
42	117	116	115	114	113	112	111	110	110	109	42
43	118	117	116	115	114	113	112	111	110	109	43
44	119	118	117	116	115	114	113	112	111	110	44
45	119	118	117	116	115	114	113	112	111	111	45
46	120	119	118	117	116	115	114	113	112	111	46
47	121	120	119	118	117	116	115	114	113	112	47
48	121	120	119	118	117	116	115	114	113	112	48
49	122	121	120	119	118	117	116	115	114	113	49
50	123	122	121	120	119	118	117	116	115	114	50
51	123	122	122	121	120	119	118	117	116	115	51
52	124	123	122	121	120	119	118	117	116	115	52
53	125	124	123	122	121	120	119	118	117	116	53
54	126	125	124	123	122	121	120	119	118	117	54
55	126	125	124	123	123	122	121	120	119	118	55
56	127	126	125	124	123	122	121	120	119	118	56
57	128	127	126	125	124	123	122	121	120	119	57
58	129	128	127	126	125	124	123	122	121	120	58
59	129	128	128	127	126	125	124	123	122	121	59
60	130	129	128	127	127	126	125	124	123	122	60
61	131	130	129	128	127	126	126	125	124	123	61
62	132	131	130	129	128	127	126	125	125	124	62
63	133	132	131	130	129	128	127	126	125	125	63
64	134	133	132	131	130	129	128	127	126	126	64
65	135	134	133	132	131	130	129	128	128	127	65
66	136	135	134	133	132	131	130	130	129	128	66
67	137	136	135	134	134	133	132	131	130	129	67
68	139	138	137	136	135	134	133	132	131	130	68
69	140	139	138	137	136	135	134	133	132	131	69
70	***	140	139	138	137	137	136	135	134	133	70
71	***	***	***	140	139	138	137	136	135	134	71
72	***	***	***	***	***	140	139	138	137	136	72
73	***	***	***	***	***	***	***	140	139	138	73
74	***	***	***	***	***	***	***	***	***	140	74
75	***	***	***	***	***	***	***	***	***	***	75
76	***	***	***	***	***	***	***	***	***	***	76
77	***	***	***	***	***	***	***	***	***	***	77
78	***	***	***	***	***	***	***	***	***	***	78
79	***	***	***	***	***	***	***	***	***	***	79
80	***	***	***	***	***	***	***	***	***	***	80

Age in years and completed months											
Total score	7.10	7.11	8.00	8.01	8.02	8.03	8.04	8.05	8.06	8.07	Total score
41	107	106	105	104	103	102	101	100	99	98	41
42	108	107	106	105	104	103	102	101	100	99	42
43	108	107	106	105	104	104	103	102	101	100	43
44	109	108	107	106	105	104	103	102	101	101	44
45	110	109	108	107	106	105	104	103	102	101	45
46	110	109	108	107	106	106	105	104	103	102	46
47	111	110	109	108	107	106	105	104	103	102	47
48	112	111	110	109	108	107	106	105	104	103	48
49	112	111	110	109	109	108	107	106	105	104	49
50	113	112	111	110	109	108	107	106	105	104	50
51	114	113	112	111	110	109	108	107	106	105	51
52	114	113	112	112	111	110	109	108	107	106	52
53	115	114	113	112	111	110	109	109	108	107	53
54	116	115	114	113	112	111	110	109	108	107	54
55	117	116	115	114	113	112	111	110	109	108	55
56	117	116	115	114	114	113	112	111	110	109	56
57	118	117	116	115	114	113	112	111	111	110	57
58	119	118	117	116	115	114	113	112	111	110	58
59	120	119	118	117	116	115	114	113	112	111	59
60	121	120	119	118	117	116	115	114	113	112	60
61	122	121	120	119	118	117	116	115	114	113	61
62	123	122	121	120	119	118	117	116	115	114	62
63	124	123	122	121	120	119	118	117	116	115	63
64	125	124	123	122	121	120	119	118	117	116	64
65	126	125	124	123	122	121	120	119	118	117	65
66	127	126	125	124	123	122	121	120	119	118	66
67	128	127	126	125	124	123	122	121	120	119	67
68	129	128	127	126	125	124	123	123	122	121	68
69	130	129	129	128	127	126	125	124	123	122	69
70	132	131	130	129	128	127	126	125	124	123	70
71	133	132	131	131	130	129	128	127	126	125	71
72	135	134	133	132	131	130	129	128	128	127	72
73	137	136	135	134	133	132	131	130	129	129	73
74	139	138	137	136	135	134	133	133	132	131	74
75	***	***	140	139	138	137	136	135	134	133	75
76	***	***	***	***	***	140	139	138	137	136	76
77	***	***	***	***	***	***	***	***	***	140	77
78	***	***	***	***	***	***	***	***	***	***	78
79	***	***	***	***	***	***	***	***	***	***	79
80	***	***	***	***	***	***	***	***	***	***	80

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