

## Reasoning 6 and end of Key Stage 1 levels

This report enables users of Verbal Reasoning 6 and Non-Verbal Reasoning 6 tests to estimate a pupil's possible end of Key Stage 1 test level in Reading, Writing and Maths. The KS1 indicators given in this document are appropriate for Reasoning 6 users who test their pupils in Year 1 in England and Wales or Primary 2 in Northern Ireland.

### 1. Background

Schools taking part in the Reasoning national standardisation were asked to provide the KS1 results at the end of the academic year. Results from Reasoning tests and end of KS1 tests were obtained from around 500 pupils.

### 2. How strong is the relationship between Reasoning scores and KS1 test results?

The strength of a relationship between two measures can be expressed with a statistic termed a correlation coefficient. This coefficient goes from 0, indicating no relationship to 1 indicating a perfect relationship.

The results showed a very strong and statistically significant correlation between the Reasoning 7 scores and the KS1 test results. The correlations are similar to those obtained between the Cognitive Abilities Test (CAT) and KS2 test results. The correlations are shown in the table below.

Reasoning Test	Key Stage 1 Tests			
	Reading	Writing	Maths	KS1 Average Point Score
Verbal SAS*	<b>0.74</b>	<b>0.71</b>	0.64	0.76
Non-verbal SAS	0.51	0.49	0.59	0.58
Average SAS	0.72	0.69	<b>0.70</b>	0.76
*SAS= Standard Age Score <i>Note: Figures in bold are the highest correlations for each KS1 outcome.</i>				

The verbal reasoning scores gave the highest correlations with the KS1 reading and writing levels and the average of verbal and non-verbal scores gave the highest correlations with the KS1 maths level. The Average Point Score is the average of the KS1 Reading, Writing and Maths test scores based on the QCA scoring system: Level 1= 9 points, Level 2C=13, Level 2B=15, Level 2A=17, Level 3=21 points.

### 3. Estimating possible end of Key Stage 1 Reading levels

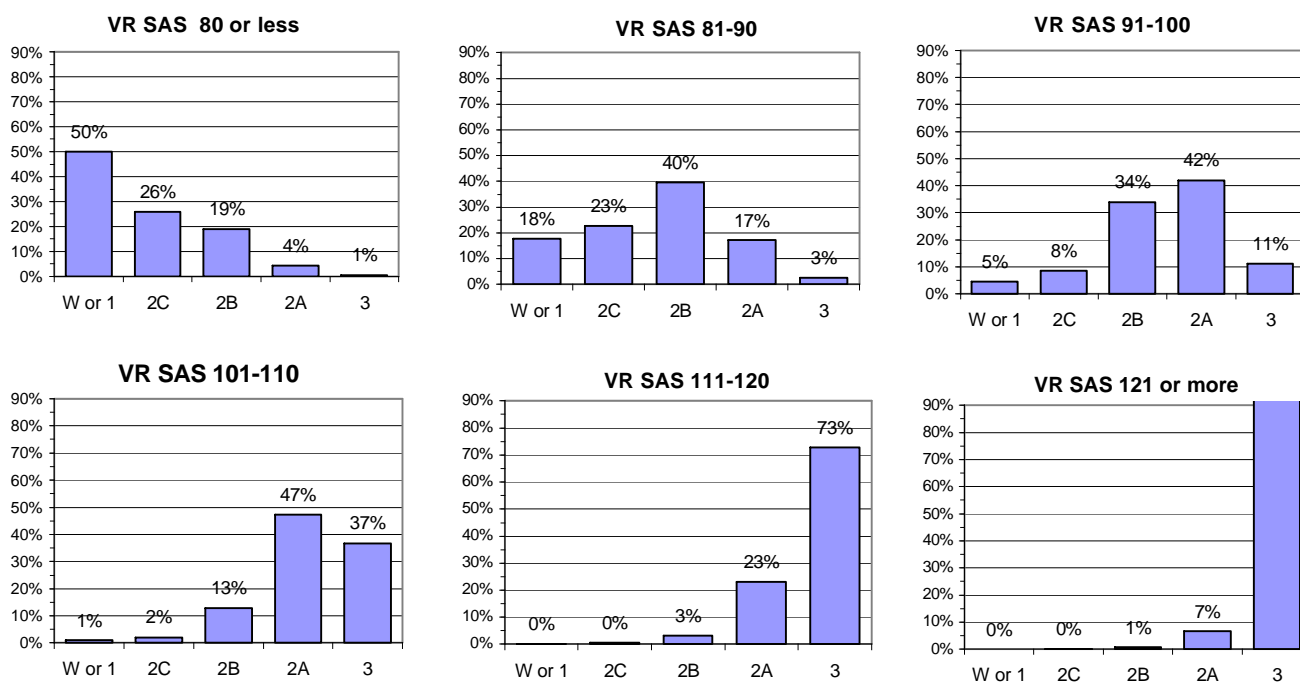
Figure 1 shows the progress charts which give indicated KS1 Reading test levels for various Verbal Reasoning standardised score bands.

To use the charts to get indicated levels for each pupil, choose the chart labelled with the Verbal Reasoning (VR) score band within which the pupil's score lies. For example, for a pupil with a VR SAS score of 105 look at the progress chart labelled 'VR SAS 101-110'. For this score band a range of KS1 reading results are possible. The most likely outcome is level 2A since 47 per cent of pupils achieved this grade. However, levels 1, 2C, 2B and 3 are also possible, since these are achieved by 1, 2, 13 and 37 per cent of pupils respectively. These charts demonstrate that a range of scores is possible, whilst most pupils will achieve a level 2A some will achieve lower and some higher levels. This is important to emphasise to pupils to show what might be achieved with sufficient motivation and effort, and to guard against complacency.

A more detailed table showing the indicators for individual standardised score points is given in section 6.

Figure 1

### Reasoning 6 SAS scores and KS1 Reading Charts

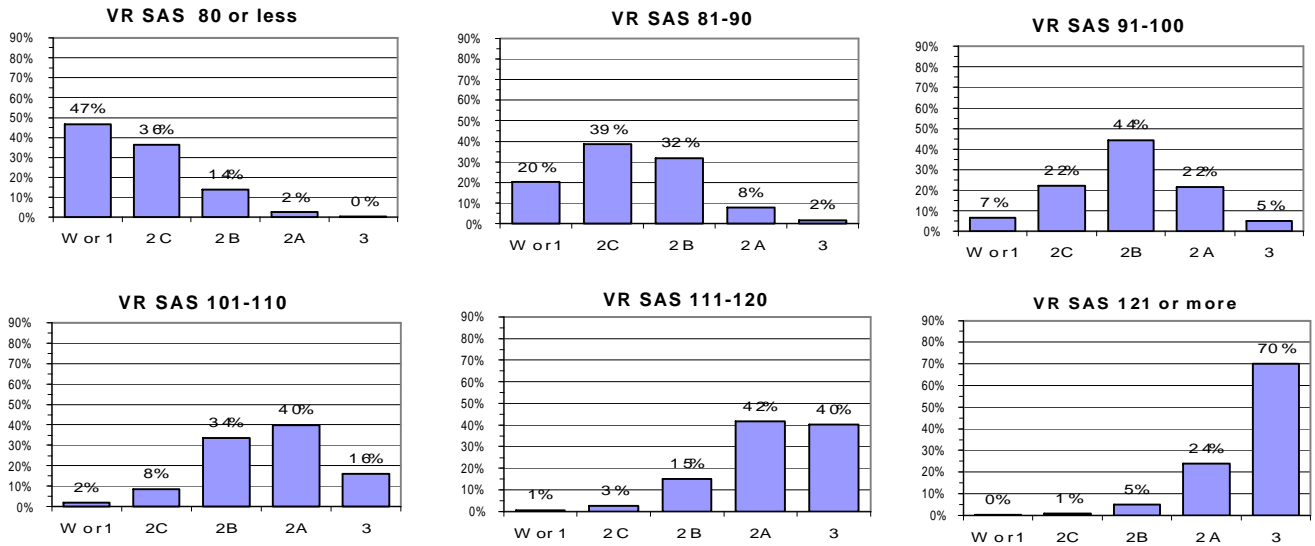


Note: use the **Verbal** Standard Age Score for Reading

#### 4. Estimating possible end of Key Stage 1 Writing levels

Figure 2 shows the progress charts which give indicated KS1 Writing test levels for various Verbal Reasoning standardised score bands.

**Figure 2**  
**Reasoning 6 SAS scores and KS1 Writing Charts**

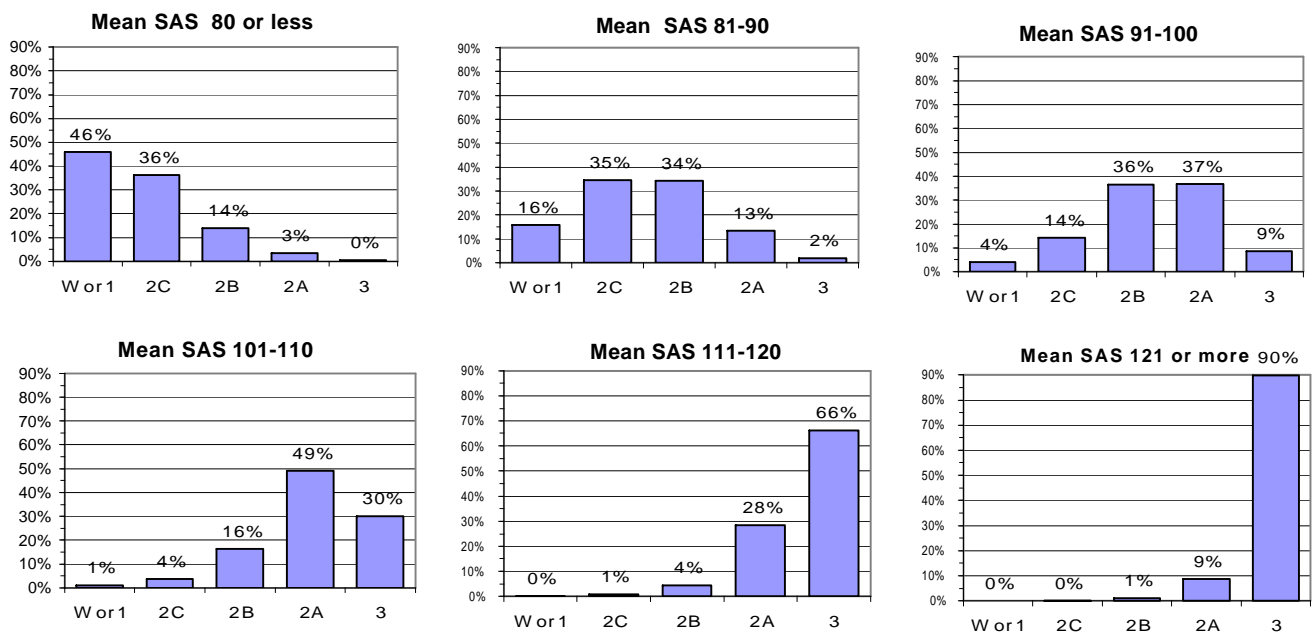


Note: use the Verbal Standard Age Score for Writing

#### 5. Estimating possible end of Key Stage 1 Maths levels

Figure 3 shows the progress charts which give indicated KS1 Maths test levels for various score bands based on the average of the Verbal and Non-Verbal standardised scores.

**Figure 3**  
**Reasoning 6 SAS scores and KS1 Maths Charts**



Note: use the average of the Verbal and Non-Verbal Standard Age Score for Maths

6. Table showing KS1 Reading and Writing indicators for each standardised score point.

Reasoning 6 to KS1 indicators																		
SAS Score*	Indicated KS1 level			KS1 Reading test probabilities					KS1 Writing test probabilities					Mathematics test probabilities				
	Reading	Writing	Maths	W or 1	2C	2B	2A	3	W or 1	2C	2B	2A	3	W or 1	2C	2B	2A	3
< 70	1	1	1	72%	17%	9%	2%	0%	65%	26%	7%	1%	0%	68%	24%	6%	1%	0%
70	1	1	1	68%	19%	10%	2%	0%	62%	28%	8%	1%	0%	64%	26%	7%	2%	0%
71	1	1	1	65%	20%	12%	2%	0%	59%	30%	9%	2%	0%	61%	28%	8%	2%	0%
72	1	1	1	61%	22%	13%	3%	0%	56%	32%	10%	2%	0%	57%	31%	10%	2%	0%
73	1	1	1	58%	23%	15%	3%	0%	53%	33%	11%	2%	0%	54%	33%	11%	3%	0%
74	1	1	1	54%	25%	17%	4%	1%	50%	35%	13%	2%	0%	50%	34%	12%	3%	0%
75	1	1	1	50%	26%	19%	4%	1%	47%	36%	14%	2%	0%	46%	36%	14%	3%	0%
76	1	1	1	46%	27%	21%	5%	1%	44%	38%	15%	3%	1%	42%	38%	16%	4%	1%
77	2C	1	1	43%	27%	23%	6%	1%	41%	39%	17%	3%	1%	39%	39%	18%	5%	1%
78	2C	1	2C	39%	28%	26%	7%	1%	38%	40%	19%	4%	1%	35%	39%	20%	5%	1%
79	2C	2C	2C	35%	28%	28%	8%	1%	35%	40%	20%	4%	1%	32%	40%	22%	6%	1%
80	2C	2C	2C	32%	28%	30%	9%	1%	32%	41%	22%	4%	1%	29%	40%	24%	7%	1%
81	2C	2C	2C	29%	27%	32%	10%	1%	29%	41%	24%	5%	1%	26%	39%	26%	8%	1%
82	2C	2C	2C	26%	26%	35%	12%	2%	27%	41%	26%	6%	1%	23%	39%	28%	9%	1%
83	2C	2C	2C	23%	25%	36%	13%	2%	24%	40%	28%	6%	1%	20%	38%	30%	10%	2%
84	2B	2C	2C	20%	24%	38%	15%	2%	22%	39%	30%	7%	1%	18%	36%	32%	12%	2%
85	2B	2C	2B	18%	23%	40%	17%	3%	20%	39%	32%	8%	2%	16%	35%	34%	13%	2%
86	2B	2C	2B	16%	21%	41%	19%	3%	18%	37%	34%	9%	2%	14%	33%	36%	15%	2%
87	2B	2C	2B	14%	20%	41%	21%	4%	16%	36%	36%	10%	2%	12%	31%	37%	17%	3%
88	2B	2B	2B	12%	18%	42%	24%	4%	15%	35%	37%	11%	2%	11%	28%	39%	19%	3%
89	2B	2B	2B	11%	17%	42%	26%	5%	13%	33%	39%	12%	3%	9%	26%	39%	21%	4%
90	2B	2B	2B	9%	15%	41%	29%	6%	12%	31%	40%	14%	3%	8%	24%	40%	24%	4%
91	2B	2B	2B	8%	14%	40%	32%	6%	11%	29%	42%	15%	3%	7%	22%	40%	26%	5%
92	2B	2B	2B	7%	12%	39%	34%	7%	10%	28%	43%	16%	4%	6%	20%	39%	29%	6%
93	2B	2B	2B	6%	11%	38%	37%	8%	9%	26%	43%	18%	4%	5%	18%	39%	32%	7%
94	2B	2B	2B	5%	10%	36%	40%	10%	8%	24%	44%	20%	5%	5%	16%	38%	34%	7%
95	2A	2B	2B	5%	8%	34%	42%	11%	7%	22%	44%	22%	5%	4%	14%	36%	37%	9%
96	2A	2B	2B	4%	7%	32%	44%	13%	6%	20%	44%	23%	6%	3%	13%	35%	39%	10%
97	2A	2B	2A	3%	7%	29%	46%	15%	5%	19%	44%	25%	7%	3%	11%	33%	42%	11%
98	2A	2B	2A	3%	6%	27%	48%	17%	5%	17%	43%	27%	7%	3%	10%	31%	44%	13%
99	2A	2B	2A	2%	5%	25%	49%	19%	4%	16%	43%	29%	8%	2%	9%	29%	46%	15%
100	2A	2B	2A	2%	4%	23%	50%	21%	4%	14%	42%	31%	9%	2%	8%	27%	47%	17%
101	2A	2B	2A	2%	4%	20%	50%	24%	3%	13%	40%	33%	10%	2%	7%	24%	48%	19%
102	2A	2A	2A	2%	3%	18%	50%	27%	3%	12%	39%	35%	12%	1%	6%	22%	49%	21%
103	2A	2A	2A	1%	3%	16%	49%	30%	3%	10%	37%	37%	13%	1%	5%	20%	50%	24%
104	2A	2A	2A	1%	2%	15%	48%	33%	2%	9%	35%	38%	14%	1%	4%	18%	50%	27%
105	2A	2A	2A	1%	2%	13%	47%	37%	2%	8%	34%	40%	16%	1%	4%	16%	49%	30%
106	2A	2A	2A	1%	2%	11%	46%	40%	2%	8%	32%	41%	18%	1%	3%	14%	48%	33%
107	2A	2A	2A	1%	2%	10%	44%	44%	2%	7%	30%	42%	20%	1%	3%	13%	47%	37%
108	2A	2A	2A	1%	1%	9%	41%	48%	1%	6%	28%	43%	22%	1%	2%	11%	45%	40%
109	3	2A	2A	1%	1%	8%	39%	52%	1%	5%	26%	44%	24%	0%	2%	10%	43%	44%
110	3	2A	2A	0%	1%	7%	36%	56%	1%	5%	24%	44%	26%	0%	2%	9%	41%	48%
111	3	2A	2A	0%	1%	6%	34%	59%	1%	4%	22%	44%	29%	0%	2%	8%	39%	52%
112	3	2A	3	0%	1%	5%	31%	63%	1%	4%	20%	44%	31%	0%	1%	7%	36%	55%
113	3	2A	3	0%	1%	4%	28%	66%	1%	3%	18%	43%	34%	0%	1%	6%	34%	59%
114	3	2A	3	0%	1%	4%	26%	70%	1%	3%	17%	43%	37%	0%	1%	5%	31%	63%
115	3	2A	3	0%	0%	3%	23%	73%	1%	3%	15%	42%	40%	0%	1%	4%	28%	66%
116	3	2A	3	0%	0%	3%	21%	76%	1%	2%	14%	40%	43%	0%	1%	4%	26%	69%
117	3	2A	3	0%	0%	2%	19%	78%	0%	2%	12%	39%	46%	0%	1%	3%	23%	73%
118	3	2A	3	0%	0%	2%	17%	81%	0%	2%	11%	37%	49%	0%	1%	3%	21%	75%
119	3	2A	3	0%	0%	2%	15%	83%	0%	2%	10%	36%	52%	0%	0%	2%	19%	78%
120	3	3	3	0%	0%	2%	13%	85%	0%	1%	9%	34%	55%	0%	0%	2%	17%	81%
121	3	3	3	0%	0%	1%	11%	87%	0%	1%	8%	32%	59%	0%	0%	2%	15%	83%
122	3	3	3	0%	0%	1%	10%	89%	0%	1%	7%	30%	62%	0%	0%	2%	13%	85%
123	3	3	3	0%	0%	1%	9%	90%	0%	1%	6%	28%	64%	0%	0%	1%	12%	87%
124	3	3	3	0%	0%	1%	8%	91%	0%	1%	6%	26%	67%	0%	0%	1%	10%	88%
125	3	3	3	0%	0%	1%	7%	93%	0%	1%	5%	24%	70%	0%	0%	1%	9%	90%
126	3	3	3	0%	0%	1%	6%	94%	0%	1%	5%	22%	72%	0%	0%	1%	8%	91%
127	3	3	3	0%	0%	1%	5%	94%	0%	1%	4%	20%	75%	0%	0%	1%	7%	92%
128	3	3	3	0%	0%	0%	4%	95%	0%	1%	4%	19%	77%	0%	0%	1%	6%	93%
129	3	3	3	0%	0%	0%	4%	96%	0%	0%	3%	17%	79%	0%	0%	1%	5%	94%
130	3	3	3	0%	0%	0%	3%	96%	0%	0%	3%	15%	81%	0%	0%	0%	4%	95%
> 130	3	3	3	0%	0%	0%	3%	97%	0%	0%	3%	14%	83%	0%	0%	0%	4%	96%

\* For Reading and Writing use Verbal SAS. For mathematics use the average of Verbal SAS and Non-Verbal SAS

## 7. Calculating school or class level estimates of KS1 levels

The school or class level estimate is the mean of the probabilities for all pupils in the year. Table below gives an example of how group estimates are calculated for this fictitious class with five pupils who have been assessed. Therefore for this example, there is a 7% chance of this group of 5 pupils getting a level W or 1. Group estimates should only ever be taken as a rough guide to the future performance of a class.

### Calculating group estimates for KS1 mathematics for a fictitious class of five pupils

Pupil	Mean VR and NVR SAS score	Indicated KS1 level	Mathematics test probabilities				
			W or 1	2C	2B	2A	3
Pupil 1	80	2C	29%	40%	24%	7%	1%
Pupil 2	93	2B	5%	18%	39%	32%	7%
Pupil 3	99	2A	2%	9%	29%	46%	15%
Pupil 4	108	2A	1%	2%	11%	45%	40%
Pupil 5	114	3	0%	1%	5%	31%	63%
<b>Group indicator</b>			<b>7%</b>	<b>14%</b>	<b>22%</b>	<b>32%</b>	<b>25%</b>