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ABSTRACT

An international numeracy scale compared how well adults in seven countries--the United Kingdom, France, Netherlands, Sweden, Japan, Australia, and Denmark--handled some basic tasks involving numbers. The questionnaire comprised a set of 12 numeracy tasks that respondents were asked to complete using pen and paper. Within each country, the numeracy tasks were posed to a representative sample of adults aged 16 or 18 to 59/60. Tasks included adding and subtracting decimals, simple multiplication, calculating area, calculating percentages, and using fractions. Comparing the percentage of respondents who managed to give the correct answer for all tasks, Japan emerged at the top with 43 percent, followed by France (40 percent), and the Netherlands (38 percent). Respondents in the United Kingdom performed least well with only 20 percent accurately completing all 12 tasks. When results were reviewed for the proportion of respondents getting most answers right, UK respondents could achieve an average of only 7.9 correct. All other nations achieved an average of 9 or more correct. Most difficulty overall was experienced with questions where respondents were asked to use fractions. Analyses inferred that the typical UK resident who struggled with basic numeracy was young, female, and from a working class household. (The report includes the full tabulated results for each question, summary tables, and these appendixes: technical notes, survey details by country, and the 12 tasks.) (YLB)

INTERNATIONAL NUMERACY SURVEY

A comparison of the basic numeracy skills of adults 16 - 60 in seven countries

Q1 Subtract 1.78 from 5

Q2 Take away 2.43 from 5

Q3 Add together 5.5, 7.25 and 3.75

Q4 The total of 4.25, 6 and 7.74

Q5 Multiply 6 x 21

Q6 Multiply 16 x 21

Q7 Area of a room 11m x 18m

Q8 Number of apples each person gets if a box of 72 is shared by six people

Q9 Work out 15% of 700

Q10 Number of children in a crowd of 7900 if the proportion is 10%

Q11 What is 5/6 of 300?

Q12 Number of books not in the sale if a third are in the sale and the total number of books is 420

The Basic Skills Agency

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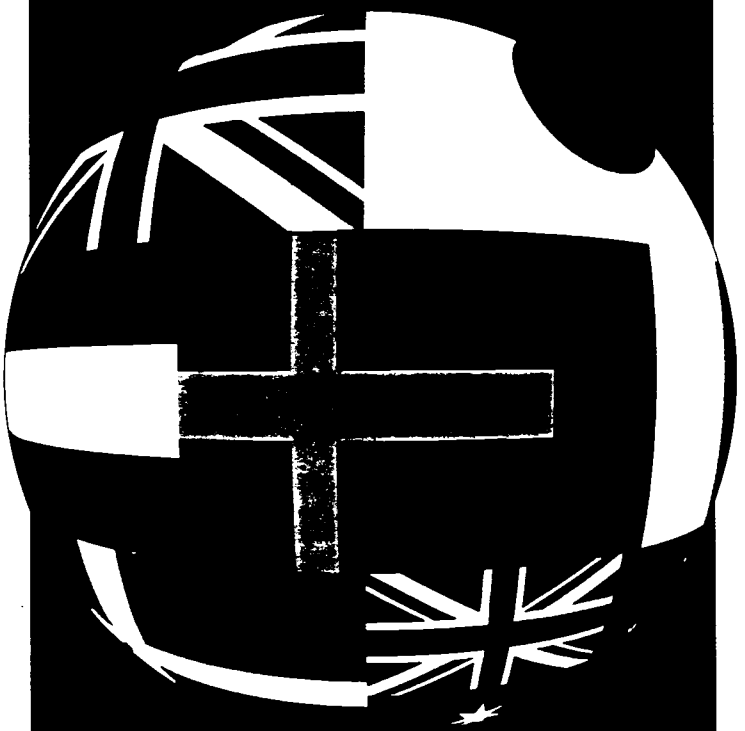

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FOREWORD

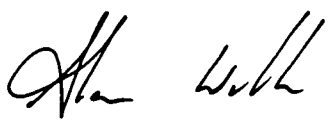
MOST of the attention when the standard of performance in basic skills is discussed focuses on literacy. Partly this is because most of us have to read (and to some extent) write almost every day. Yet increasingly evidence is becoming available about the importance of numeracy both in everyday life and in the world of work.

This small scale *International Numeracy Survey* compares how well adults in seven countries, including the UK, handle some basic tasks involving numbers. The tasks included adding and subtracting decimals, calculating percentages and using fractions. They were all at a fairly basic level; for example 'What is 15% of 700?' and 'Subtract 1.78 from 5'.

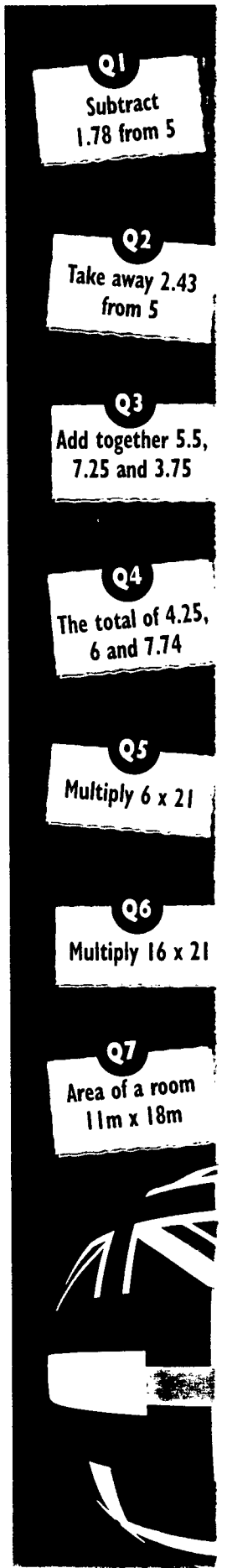
The results for the UK are not very encouraging. People in the survey in this country answered fewer questions correctly than adults in any of the other countries – France, the Netherlands, Sweden, Japan, Australia and Denmark. Of course, this was a small scale survey and a larger survey, using different questions, might have come up with a more encouraging result.

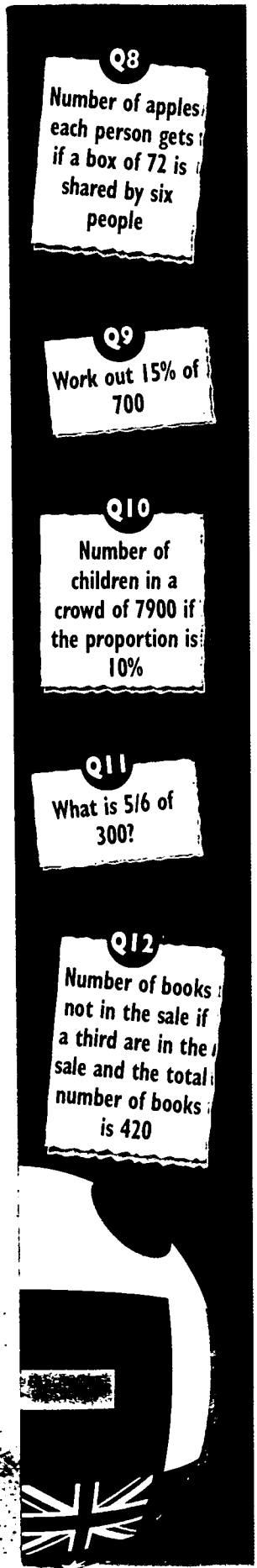
Whatever the current position is in schools, if this survey is right, we have been doing poorly in teaching numeracy for some time. Or perhaps, other countries have recognised the need for good numeracy skills in the modern world rather more than we have.

I am grateful to Susan Kempa from Opinion Research Business (ORB) who arranged this survey, and also to the companies in six other countries which, through ORB's good offices, agreed to take part.



Alan Wells OBE
Director
The Basic Skills Agency





INTRODUCTION

THE Opinion Research Business (ORB) was commissioned to undertake research to compare the standards of numeracy across seven countries.

Participating countries included the UK, France, the Netherlands, Sweden, Japan, Australia and Denmark.

The questionnaire comprised a set of twelve numeracy tasks which respondents were asked to complete using only pen and paper.

To ensure consistency internationally, participating fieldwork agencies were given detailed guidance notes on how to administer the questionnaire and analyse the results.

Within each country, the numeracy tasks were posed to a representative sample of adults aged 18-59/60 or 16-59/60. The tasks took approximately seven minutes to administer (though no time limit was set on completion of answers) and were included on face-to-face omnibus surveys.

Fieldwork took place between September and November 1996 and was subcontracted to professional market research organisations in each country.

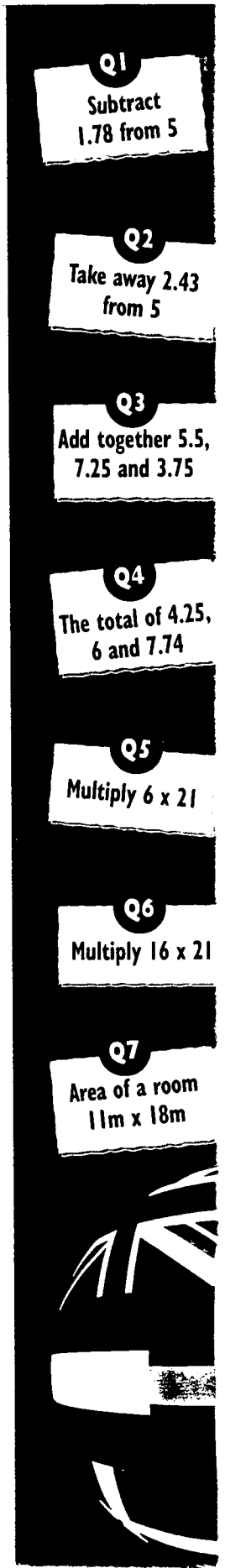
Individuals who refused outright to undertake the tasks before being shown the types of numerical calculations involved have been excluded from the data, which has consequently been repercentaged. Such individuals were from all social strata and educational backgrounds and it cannot be inferred that their refusal is due to poor numeracy skills. However, it is likely that those with numeracy problems feature more than those without problems in this group. The percentage of outright refusals was higher in the UK sample (at 13%) than elsewhere (where it ranged from 0% – 6%) (see Technical Notes).

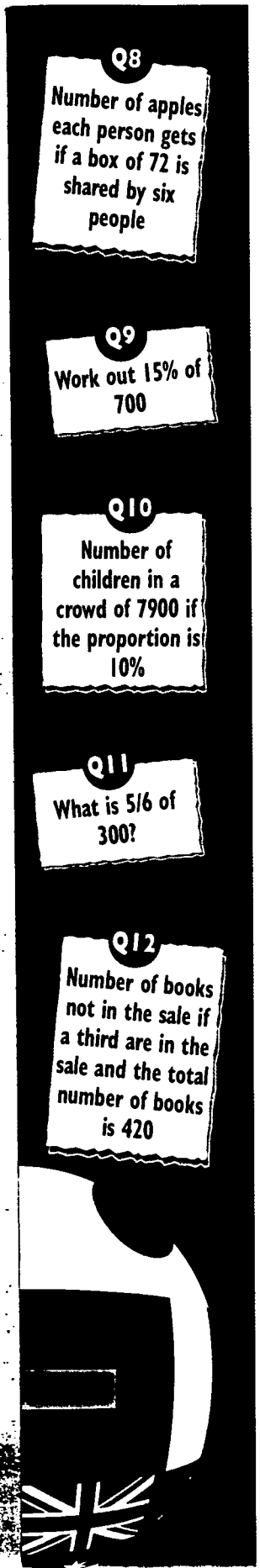
This report summarises the main findings of the research.

MAIN FINDINGS

Questions

Q1	Subtract 1.78 from 5
Q2	Take away 2.43 from 5
Q3	Add together 5.5, 7.25 and 3.75
Q4	The total of 4.25, 6 and 7.74
Q5	Multiply 6 x 21
Q6	Multiply 16 x 21
Q7	Area of a room 11m x 18m
Q8	Number of apples each person gets if a box of 72 is shared by six people
Q9	Work out 15% of 700
Q10	Number of children in a crowd of 7900 if the proportion is 10%
Q11	What is 5/6 of 300?
Q12	Number of books not in the sale if a third are in the sale and the total number of books is 420





Comparison of Overall Findings by Country

THE types of numeracy tasks given to respondents included the addition and subtraction of decimals, simple multiplication, the calculation of area, calculating percentages and using fractions.

The results for the number of correct answers given across the twelve numeracy tasks in each country are shown in Table 1.

Comparing the percentage of respondents who managed to give the correct answer for all the tasks, the table shows that Japan emerged top. 43% of respondents tested in Japan achieved a full set of correct answers. This was followed by France (40% getting them all correct) and the Netherlands (38%).

Respondents in the UK performed least well. Only 1 in 5 people tested (20%) managed to accurately complete all twelve tasks.

Australia was second from bottom (at 33%) but Australians still performed significantly better than the UK.

When the results are reviewed for the proportion of respondents getting most answers right (10-12 correct across the twelve tasks) the UK respondents do not improve their performance vis a vis other countries. Barely half (47%) were able to give the correct answer for 10 or more of the tasks, which compares very unfavourably with the rest of Europe (76% in the Netherlands, 68% in Denmark and 65% in France and Sweden).

Australians also perform worse than average (58% getting 10 or more correct answers) and, perhaps predictably, the Japanese put in the best performance (81% achieving 10 or more correct answers).

At the other end of the scale almost a quarter of the UK respondents (22%) could only answer up to 5 questions out of the 12. This compares with a lower 14% in Australia, 10% in France, 7% in Sweden, 7% in Denmark, 5% in Japan and 4% in the Netherlands.

2% of UK respondents admitted to not knowing how to answer any question and a further 2% refused to answer any after seeing them, which implies that they found them too difficult. These findings also compare unfavourably with the results for other participating countries (Table 1).

In fact, overall, British respondents could only achieve an average of 7.9 correct answers out of the 12. All other nations surveyed achieved an average of 9 or more correct answers.

Table 1: Scores achieved across 12 numeracy tasks

Country	*UK*	*France*	*Netherlands*	*Sweden*	*Japan*	*Australia*	*Denmark*
Age band	*16-60*	*18-60*	*16-60*	*16-60*	*18-59*	*16-59*	*16-60*
Base	*660* %	*932* %	*994* %	*813* %	*884* %	*801* %	*852* %
12 correct answers	20	40	38	34	43	33	36
10-12 correct answers	47	65	76	65	81	58	68
6-9 correct answers	27	25	19	26	14	26	24
5 or fewer correct answers	22	10	4	7	5	14	7
Could not answer any question	2	*	0	1	0	1	*
Refused after seeing all questions	2	1	1	1	0	1	1
Average number of correct answers	7.9	9.6	10.3	9.6	10.5	9.0	9.8

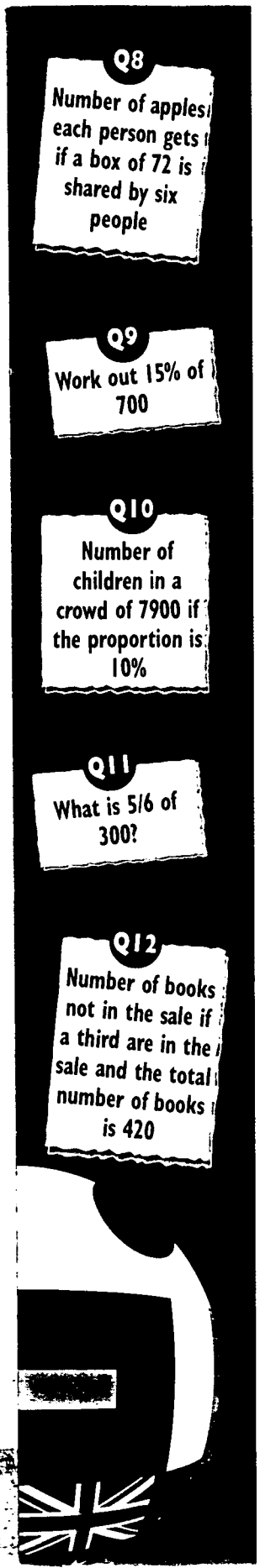
* Denotes less than 0.5%.

A possible explanation for the comparatively poor performance of UK respondents is the high refusal rates for each question. For all questions and all countries some respondents refused to tackle a numeracy task after seeing it or, having tackled a few of the earlier tasks, then refused to continue with the interview. This group would most likely include those who have difficulty with numerical calculations generally or with specific types of calculations, such as percentages or fractions. However it could also include those who lacked interest and motivation in completing the full set of tasks.

In the UK, the level of these refusals was higher than for all other countries at between 5% and 9% per question, compared to an average of between 2% and 5% for the other nations surveyed.

However, even if the UK data is repercentaged to exclude these individuals, the UK results are still worse than those of other countries across all twelve numeracy tasks, with the percent giving the correct answer for each question lower than in any other country.

Therefore we can have a reasonable degree of confidence that the survey findings demonstrate that UK adults are less competent in numeracy than those living in the other countries surveyed, at least where using pen and paper to work out common everyday numerical calculations is concerned.



Numeracy Tasks Causing Most Difficulty

TABLE 2 gives the results for the individual numeracy tasks which respondents were asked to complete.

The table lists the percentage of respondents giving the correct answer for each country, together with the average percentage across all countries.

Overall, most difficulty was experienced with question 11, where respondents were asked to use fractions, and question 12, which involved working out how many books are not in the sale if a third are in the sale, which again involves the use of fractions. Only 68% of respondents across all countries were able to give the correct answer for these two questions.

Using percentages (Q9) and calculating areas (Q7) also caused more difficulty overall than the other numeracy tasks, which tested skills in subtraction, addition, multiplication and division.

However, it is clear from the table that for all questions, significantly fewer respondents surveyed in the UK were able to give a correct answer and performance overall in the UK was much worse than average.

As stated earlier, UK respondents still perform much worse than average even if those who refused to tackle specific questions, or refused to continue with the interview after tackling a few questions, are excluded from the calculations.

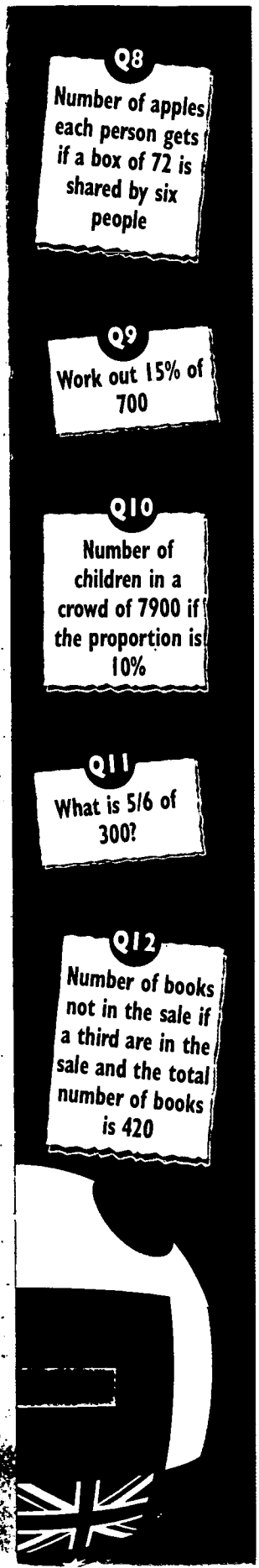
Questions UK participants found most difficult mirrored those for the sample as a whole ie. using fractions, percentages and calculating areas. In fact significant minorities of UK participants openly admitted that they were unable to answer these questions. For question 11 (calculating 5/6 of 300) almost 3 in 10 (28%) admitted that they could not answer the question, 25% were unable to answer question 9 (working out 15% of 700) and 22% said they could not answer question 7 (calculating the area of a room 11m x 18m). The true percentages would be higher if those who refused to answer these questions after seeing them (probably because they found them too difficult) are included (typically each would increase by 5-6%).

Again, these figures are higher than for all other countries surveyed.

The question UK respondents found the easiest was question 5 (multiplying 6 x 21). 83% gave the correct answer for this question. However, this compares unfavourably with other countries where 90% or more gave the correct answer.

Table 2: Results for individual questions – Percent giving the correct answer

Country	*UK*	*France*	*Netherlands*	*Sweden*	*Japan*	*Australia*	*Denmark*	*Average*
Age band	*16-60*	*18-60*	*16-60*	*16-60*	*18-59*	*16-59*	*16-60*	*All Countries*
Base	*660* %	*932* %	*994* %	*813* %	*884* %	*801* %	*852* %	*5936* %
Q1. Subtract 1.78 from 5								
	70	81	85	74	94	79	85	82
Q2. Take away 2.43 from 5								
	71	82	86	84	94	80	83	83
Q3. Add together 5.5, 7.25 and 3.75								
	72	85	89	83	79	81	87	83
Q4. The total of 4.25, 6 and 7.74								
	77	84	86	89	85	83	90	85
Q5. Multiply 6 x 21								
	83	94	93	91	97	90	94	92
Q6. Multiply 16 x 21								
	60	82	82	84	88	75	81	80
Q7. Area of a room 11m x18m								
	56	76	85	81	80	66	81	76
Q8. Number of apples each person gets if a box of 72 is shared by six people								
	80	86	95	90	96	85	90	89
Q9. Work out 15% of 700								
	54	73	85	75	83	63	76	74
Q10. Number of children in a crowd of 7900 if the proportion is 10%								
	65	88	84	85	88	75	79	81
Q11. What is 5/6 of 300?								
	54	61	81	60	86	63	65	68
Q12. Number of books not in the sale if a third are in the sale and the total number of books is 420								
	53	67	75	61	82	62	67	68



80% of UK participants were also able to correctly answer question 8 (the number of apples each person gets if 72 apples are shared by six people). But at least 85% of respondents in other countries gave the correct answer to this question.

For most other questions, around 7 in 10 or fewer UK respondents were able to give a correct answer.

UK Results by selected Demographic Sub-Groups

GIVEN the comparatively poor performance in the numeracy tasks for the UK when compared with other countries, it is interesting to assess which particular population sub-groups exhibit the poorest numeracy skills.

Table 3 gives the overall results for the UK broken down by gender, socio-economic group and age.

The table shows that those with the poorest numeracy skills are from working class households (C2DEs) where only 35% managed to answer 10 or more of the 12 numeracy tasks correctly. 34% were only able to answer up to 5 questions and a further 2% could not answer any of the questions. 3% refused to answer any after seeing them. The average number of correct answers given by those from C2DE households was only 6.8.

By comparison those from white collar households (ABC1s) scored an average of 9.2 correct answers.

These differences are statistically significant.

Equally, women performed worse than men in the tasks and while 54% of men correctly answered 10-12 questions, only 39% of women were able to achieve this score. The average number of correct answers achieved by men was 8.6 compared to a lower 7.3 for women.

These differences are also statistically significant.

Across the different age groups, 35-54 year olds out-performed 16-34 year olds and while the former group scored an average of 8.2 correct answers out of 12, this dropped to 7.8 for the latter group.

Furthermore, 50% of 35-54 year olds scored 10-12 correct answers while only 44% of 16-34 year olds could achieve this score.

From these findings it can be inferred that the typical UK resident who struggles with basic numeracy is likely to be young, female and from a working class household.

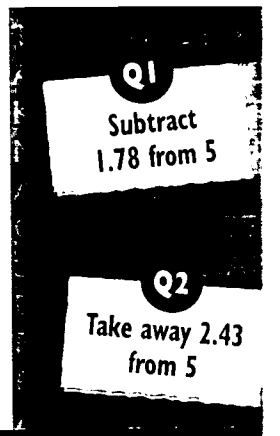
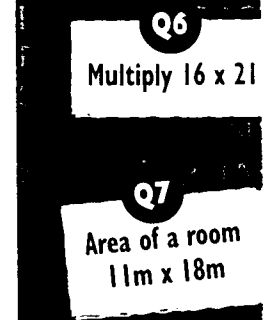


Table 3: UK Results by selected demographic sub-groups

	UK	Gender		SE Group		Age		
	Total	*Male*	*Female*	*ABC1*	*C2DE*	*16-34*	*35-54*	*55-60*
Base	*660* %	*338* %	*323* %	*321* %	*343* %	*312* %	*294* %	*52* %
12 correct answers	20	23	17	26	14	16	23	29
10-12 correct answers	47	54	39	59	35	44	50	49
6-9 correct answers	27	24	31	27	27	31	24	20
5 or fewer correct answers	22	19	25	11	34	23	20	26
Could not answer any question	2	1	3	1	2	1	2	4
Refused after seeing all questions	2	1	3	2	3	2	2	4
Average number of correct answers	7.9	8.6	7.3	9.2	6.8	7.8	8.2	7.6

* Denotes less than 0.5%.



Q8

Number of apples each person gets if a box of 72 is shared by six people

FULL TABULATED RESULTS

Q1. Subtract 1.78 from 5.

Country	*UK*		*France*		*Netherlands*		*Sweden*		*Japan*		*Australia*		*Denmark*	
Age band	*16-60*		*18-60*		*16-60*		*16-60*		*18-59*		*16-59*		*16-60*	
Base	*660*	*%*	*932*	*%*	*994*	*%*	*813*	*%*	*884*	*%*	*801*	*%*	*852*	*%*
3.22	461	70	758	81	848	85	599	74	827	94	630	79	728	85
Other answer	84	13	119	13	123	12	100	12	38	4	92	11	100	12
Don't know/Could not answer	84	13	39	4	0	0	96	12	19	2	45	6	11	1
Refused after seeing question	31	5	15	2	23	2	14	2	0	0	31	4	13	2
Refused outright	0	0	1	*	0	0	4	*	0	0	3	*	1	*
No answer	0	0	0	0	0	0	0	0	0	0	0	0	0	0

* Denotes less than 0.5%

Q2. What is left over if you take away 2.43 from 5?

Country	*UK*		*France*		*Netherlands*		*Sweden*		*Japan*		*Australia*		*Denmark*	
Age band	*16-60*		*18-60*		*16-60*		*16-60*		*18-59*		*16-59*		*16-60*	
Base	*660*	*%*	*932*	*%*	*994*	*%*	*813*	*%*	*884*	*%*	*801*	*%*	*852*	*%*
2.57	468	71	763	82	855	86	686	84	829	94	637	80	705	83
Other answer	84	13	118	13	117	12	88	11	35	4	88	11	121	14
Don't know/Could not answer	71	11	31	3	0	0	25	3	20	2	41	5	12	1
Refused after seeing question	26	4	18	2	22	1	11	1	0	0	27	3	10	2
Refused outright	5	1	1	*	0	0	3	*	0	0	8	1	4	*
No answer	1	*	1	*	0	0	0	0	0	0	0	0	0	0

* Denotes less than 0.5%

Q3. Add together 5.5, 7.25 and 3.75

Country	*UK*		*France*		*Netherlands*		*Sweden*		*Japan*		*Australia*		*Denmark*	
Age band	*16-60*		*18-60*		*16-60*		*16-60*		*18-59*		*16-59*		*16-60*	
Base	*660*	*%*	*932*	*%*	*994*	*%*	*813*	*%*	*884*	*%*	*801*	*%*	*852*	*%*
16.5	472	72	791	85	882	89	678	83	702	79	649	81	743	87
Other answer	109	17	93	10	98	10	73	9	142	16	90	11	89	10
Don't know/Could not answer	44	7	26	3	0	0	39	5	40	5	27	3	5	1
Refused after seeing question	22	3	17	2	14	1	20	2	0	0	26	3	10	1
Refused outright	12	2	5	1	0	0	2	*	0	0	9	1	7	1
No answer	1	*	0	0	0	0	1	*	0	0	0	0	0	0

* Denotes less than 0.5%

Q4. How much does 4.25, 6 and 7.74 come to in total?

Country	*UK*		*France*		*Netherlands*		*Sweden*		*Japan*		*Australia*		*Denmark*	
Age band	*16-60*		*18-60*		*16-60*		*16-60*		*18-59*		*16-59*		*16-60*	
Base	*660*	*%*	*932*	*%*	*994*	*%*	*813*	*%*	*884*	*%*	*801*	*%*	*852*	*%*
17.99	508	77	779	84	859	86	721	89	748	85	666	83	767	90
Other answer	61	9	100	11	115	12	62	8	101	11	69	9	63	7
Don't know/Could not answer	52	8	31	3	0	0	16	2	35	4	26	3	5	1
Refused after seeing question	25	4	16	2	20	2	12	1	0	0	25	3	10	1
Refused outright	14	2	6	1	0	0	3	*	0	0	15	2	6	1
No answer	0	0	0	0	0	0	0	0	0	0	0	0	0	0

* Denotes less than 0.5%

Q5. Multiply 6 by 21

Country	*UK*		*France*		*Netherlands*		*Sweden*		*Japan*		*Australia*		*Denmark*	
Age band	*16-60*		*18-60*		*16-60*		*16-60*		*18-59*		*16-59*		*16-60*	
Base	*660*	*%*	*932*	*%*	*994*	*%*	*813*	*%*	*884*	*%*	*801*	*%*	*852*	*%*
126	548	83	878	94	924	93	737	91	858	97	718	90	804	94
Other answer	42	6	26	3	56	6	47	6	16	2	30	4	31	4
Don't know/Could not answer	36	5	11	1	0	0	13	2	10	1	21	3	2	*
Refused after seeing question	20	3	12	1	14	1	12	1	0	0	20	2	10	1
Refused outright	14	2	5	1	0	0	4	0	0	0	12	1	6	1
No answer	0	0	0	0	0	0	0	0	0	0	0	0	0	0

* Denotes less than 0.5%

Q6. Multiply 16 by 21.

Country	*UK*		*France*		*Netherlands*		*Sweden*		*Japan*		*Australia*		*Denmark*	
Age band	*16-60*		*18-60*		*16-60*		*16-60*		*18-59*		*16-59*		*16-60*	
Base	*660*	*%*	*932*	*%*	*994*	*%*	*813*	*%*	*884*	*%*	*801*	*%*	*852*	*%*
336	393	60	767	82	811	82	685	84	778	88	602	75	688	81
Other answer	139	21	116	12	162	16	85	10	49	6	112	15	136	16
Don't know/Could not answer	87	13	25	3	0	0	27	3	57	6	44	5	11	1
Refused after seeing question	28	4	17	2	21	2	10	1	0	0	20	2	10	1
Refused outright	14	2	6	1	0	0	7	1	0	0	13	2	6	1
No answer	0	0	1	*	0	0	0	0	0	0	0	0	0	0

* Denotes less than 0.5%

Q7. What is the area of a rectangular room measuring 11 metres by 18 metres?

Country	*UK*		*France*		*Netherlands*		*Sweden*		*Japan*		*Australia*		*Denmark*	
Age band	*16-60*		*18-60*		*16-60*		*16-60*		*18-59*		*16-59*		*16-60*	
Base	*660*	*%*	*932*	*%*	*994*	*%*	*813*	*%*	*884*	*%*	*801*	*%*	*852*	*%*
198 square metres	372	56	705	76	849	85	659	81	709	80	529	66	686	81
Other answer	85	13	109	12	87	9	72	9	58	7	81	10	64	8
Don't know/Could not answer	148	22	89	10	0	0	60	7	117	13	137	17	62	7
Refused after seeing question	39	6	17	2	58	6	15	2	0	0	38	5	30	4
Refused outright	16	2	10	1	0	0	7	1	0	0	16	2	10	1
No answer	0	0	2	*	0	0	0	0	0	0	0	0	0	0

* Denotes less than 0.5%

Q8. Six people share a box of apples. The total number of apples is 72.
How many apples does each person get?

Country	*UK*		*France*		*Netherlands*		*Sweden*		*Japan*		*Australia*		*Denmark*	
Age band	*16-60*		*18-60*		*16-60*		*16-60*		*18-59*		*16-59*		*16-60*	
Base	*660*	*%*	*932*	*%*	*994*	*%*	*813*	*%*	*884*	*%*	*801*	*%*	*852*	*%*
12	530	80	802	86	943	95	735	90	847	96	684	85	765	90
Other answer	46	7	69	7	36	4	44	5	17	2	51	6	52	6
Don't know/Could not answer	48	7	35	4	0	0	20	2	20	2	30	4	17	2
Refused after seeing question	20	3	18	2	15	2	7	1	0	0	22	3	10	1
Refused outright	17	3	7	1	0	0	6	1	0	0	14	2	8	1
No answer	0	0	1	*	0	0	0	0	0	0	0	0	0	0

* Denotes less than 0.5%

Q9. Work out 15% of 700

Country	UK		France		Netherlands		Sweden		Japan		Australia		Denmark	
Age band	16-60		18-60		16-60		16-60		18-59		16-59		16-60	
Base	660	%	932	%	994	%	813	%	884	%	801	%	852	%
105	358	54	678	73	840	85	611	75	730	83	503	63	644	76
Other answer	85	13	134	14	107	11	97	12	65	7	132	16	85	10
Don't know/Could not answer	164	25	83	9	0	0	85	10	89	10	112	14	76	9
Refused after seeing question	35	5	27	3	47	5	12	1	0	0	35	4	36	4
Refused outright	18	3	10	1	0	0	8	1	0	0	19	2	11	1
No answer	0	0	0	0	0	0	0	0	0	0	0	0	0	0

* Denotes less than 0.5%

Q10. The proportion of children in a crowd of 7900 is 10%.
How many children are there in total?

Country	UK		France		Netherlands		Sweden		Japan		Australia		Denmark	
Age band	16-60		18-60		16-60		16-60		18-59		16-59		16-60	
Base	660	%	932	%	994	%	813	%	884	%	801	%	852	%
790	429	65	816	88	832	84	691	85	777	88	603	75	674	79
Other answer	91	14	53	6	132	13	61	8	50	6	93	12	107	13
Don't know/Could not answer	93	14	39	4	0	0	45	6	57	6	65	8	42	5
Refused after seeing question	29	4	18	2	30	3	10	1	0	0	24	3	17	2
Refused outright	18	3	6	1	0	0	6	1	0	0	16	2	13	2
No answer	0	0	0	0	0	0	0	0	0	0	0	0	0	0

* Denotes less than 0.5%

Q11. What is 5/6 of 300?

Country	*UK*		*France*		*Netherlands*		*Sweden*		*Japan*		*Australia*		*Denmark*	
Age band	*16-60*		*18-60*		*16-60*		*16-60*		*18-59*		*16-59*		*16-60*	
Base	*660*	*%*	*932*	*%*	*994*	*%*	*813*	*%*	*884*	*%*	*801*	*%*	*852*	*%*
250	355	54	570	61	805	81	486	60	760	86	501	63	554	65
Other answer	59	9	165	18	99	10	120	15	51	6	86	11	111	13
Don't know/Could not answer	186	28	149	16	0	0	179	22	73	8	166	21	124	15
Refused after seeing question	40	6	33	4	90	9	20	2	0	0	28	3	50	6
Refused outright	21	3	15	2	0	0	8	1	0	0	20	2	14	2
No answer	0	0	0	0	0	0	0	0	0	0	0	0	0	0

* Denotes less than 0.5%

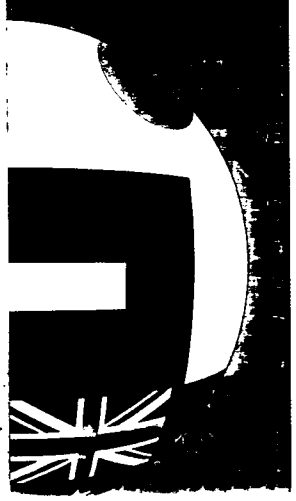
Q12. A bookshop contains 420 books. A third of the books are in the sale. What is the total number of books not in the sale?

Country	*UK*		*France*		*Netherlands*		*Sweden*		*Japan*		*Australia*		*Denmark*	
Age band	*16-60*		*18-60*		*16-60*		*16-60*		*18-59*		*16-59*		*16-60*	
Base	*660*	*%*	*932*	*%*	*994*	*%*	*813*	*%*	*884*	*%*	*801*	*%*	*852*	*%*
280	352	53	625	67	746	75	495	61	725	82	493	62	571	67
Other answer	132	20	176	19	188	19	195	24	104	12	159	20	160	19
Don't know/Could not answer	119	18	88	9	0	0	98	12	55	6	103	13	78	9
Refused after seeing question	37	6	30	3	60	6	17	2	0	0	25	3	31	4
Refused outright	21	3	13	1	0	0	7	1	0	0	21	3	13	2
No answer	0	0	0	0	0	0	0	0	0	0	0	0	0	0

* Denotes less than 0.5%

Summary Table: Scores achieved across 12 numeracy tests

Country	*UK*		*France*		*Netherlands*		*Sweden*		*Japan*		*Australia*		*Denmark*	
Age band	*16-60*		*18-60*		*16-60*		*16-60*		*18-59*		*16-59*		*16-60*	
Base	*660*	*%*	*932*	*%*	*994*	*%*	*813*	*%*	*884*	*%*	*801*	*%*	*852*	*%*
12 correct	132	20	370	40	376	38	277	34	381	43	263	33	307	36
11 correct	99	15	126	14	243	24	143	18	211	24	109	14	161	19
10 correct	78	12	99	11	136	14	103	13	128	14	89	11	108	13
9 correct	66	10	75	8	87	9	82	10	47	5	85	11	66	8
8 correct	47	7	75	8	47	5	54	7	38	4	58	7	49	6
7 correct	40	6	47	5	31	3	44	5	24	3	40	5	54	6
6 correct	25	4	40	4	24	2	31	4	20	2	26	3	34	4
5 correct	30	5	29	3	10	1	18	2	8	1	26	3	25	3
4 correct	26	4	15	2	14	1	13	2	6	1	22	3	13	2
3 correct	24	4	11	1	2	*	9	1	6	1	16	2	10	1
2 correct	22	3	12	1	5	1	12	1	6	1	14	2	4	*
1 correct	22	3	10	1	5	1	3	*	8	1	11	1	4	*
0 correct	23	3	17	2	3	*	10	1	1	*	27	3	11	1
Don't know/could not answer (all Qs)	12	2	1	*	0	0	8	1	0	0	6	1	1	*
Refused after seeing (all Qs)	14	2	5	1	11	1	6	1	0	0	9	1	5	1
Average Number of correct answers	7.9		9.6		10.3		9.6		10.5		9.0		9.8	



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UK Results by Age

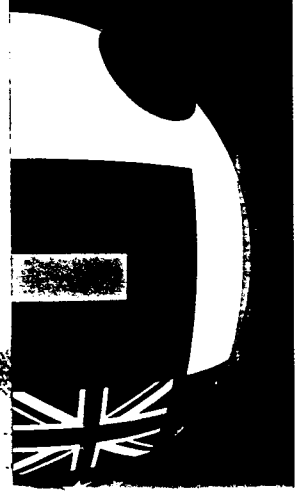
Summary Table: Scores achieved across 12 numeracy tests

	Total		Age													
			16-24		25-34		35-44		45-54		16-34		35-54		55-60	
Base	660	%	148	%	164	%	161	%	133	%	312	%	294	%	52	%
12 correct	132	20	23	16	26	16	31	19	38	29	49	16	69	23	15	29
11 correct	99	15	17	11	29	18	29	18	19	14	46	15	48	16	4	8
10 correct	78	12	11	7	28	17	11	7	21	16	39	13	32	11	6	12
9 correct	66	10	12	8	21	13	18	11	12	9	33	11	30	10	3	6
8 correct	47	7	13	9	11	7	12	7	8	6	24	8	20	7	3	6
7 correct	40	6	11	7	11	7	11	7	5	4	22	7	16	5	2	4
6 correct	25	4	12	8	5	3	3	2	3	2	17	5	6	2	2	4
5 correct	30	5	11	7	4	2	5	3	7	5	15	5	12	4	3	6
4 correct	26	4	6	4	7	4	7	4	5	4	13	4	12	4	1	2
3 correct	24	4	7	5	5	3	7	4	3	2	12	4	10	3	1	2
2 correct	22	3	10	7	2	1	5	3	1	1	12	4	6	2	4	8
1 correct	22	3	3	2	4	2	5	3	7	5	7	2	12	4	2	4
0 correct	23	3	7	5	5	3	8	5	1	1	12	4	9	3	2	4
Don't know/ could not answer (all Qs)	12	2	1	1	3	2	5	3	1	1	4	1	6	2	2	4
Refused after seeing (all Qs)	14	2	4	3	3	2	4	2	2	2	7	2	6	2	2	4
Average Number of correct answers	7.9		7.1		8.3		7.7		8.8		7.8		8.2		7.6	

UK Results by Demographic Sub Groups

Summary Table: Scores achieved across 12 numeracy tests

	Total		Sex				SE Group											
			Male		Female		AB		C1		C2		DE		ABC1		C2DE	
Base	*660*	*%*	*338*	*%*	*323*	*%*	*102*	*%*	*219*	*%*	*167*	*%*	*176*	*%*	*321*	*%*	*343*	*%*
12 correct	132	20	78	23	54	17	27	26	58	26	29	17	19	11	85	26	48	14
11 correct	99	15	65	19	34	11	23	23	38	17	22	13	16	9	61	19	38	11
10 correct	78	12	42	12	36	11	20	20	24	11	16	10	18	10	44	14	34	10
9 correct	66	10	35	10	32	10	15	15	24	11	16	10	12	7	39	12	28	8
8 correct	47	7	20	6	27	8	3	3	20	9	16	10	8	5	23	7	24	7
7 correct	40	6	19	6	21	7	4	4	13	6	10	6	13	7	17	5	23	7
6 correct	25	4	6	2	19	6	0	0	9	4	10	6	6	3	9	3	16	5
5 correct	30	5	14	4	16	5	3	3	7	3	8	5	13	7	10	3	21	6
4 correct	26	4	13	4	13	4	2	2	4	2	9	5	10	6	6	2	19	6
3 correct	24	4	13	4	11	3	0	0	7	3	7	4	9	5	7	2	16	5
2 correct	22	3	9	3	13	4	0	0	3	1	6	4	13	7	3	1	19	6
1 correct	22	3	8	2	14	4	2	2	3	1	8	5	10	6	5	2	18	5
0 correct	23	3	8	2	15	5	0	0	2	1	5	3	17	10	2	1	22	6
Don't know/ could not answer (all Qs)	12	2	3	1	9	3	2	2	2	1	1	1	7	4	4	1	8	2
Refused after seeing (all Qs)	14	2	5	1	9	3	1	1	5	2	4	2	5	3	6	2	9	3
Average Number of correct answers	7.9		8.6		7.3		9.7		8.9		7.6		6.0		9.2		6.8	



APPENDICES

Appendix 1: **Technical Notes**

1. The data in this report has been extracted from the data supplied by each participating country. The data has been recalculated to exclude individuals who refused outright to undertake the numeracy tasks without seeing any of them. Such individuals were from all social groups and included those from different age and gender groupings and it cannot be inferred that their refusal is due to problems dealing with numerical calculations. However, it is likely that those with numeracy problems feature more than those without problems in this group. The individual outright refusal rates by country were as follows:

UK	13%
France	0.4%
Netherlands	0%
Sweden	1%
Japan	6%
Australia	5%
Denmark	3%

The high outright refusal rate in the UK sample has resulted in a smaller effective sample size of 660 compared to the other countries surveyed (879 on average).

This does not affect the validity of any comparisons made.

2. The UK results in this report are based on interviews conducted with a representative sample of the British public aged 16-60. Where necessary, the data from other countries has been recalculated to the nearest equivalent age band.

For some countries, persons aged 16 and 17 were not surveyed. Had they been surveyed, however, we would not expect the percent correctly answering all of the numeracy questions to vary by more that 1%, if at all, to the percent recorded for those aged 18 and over.

Q1 Subtract 1.78 from 5

Q2 Take away 2.43 from 5

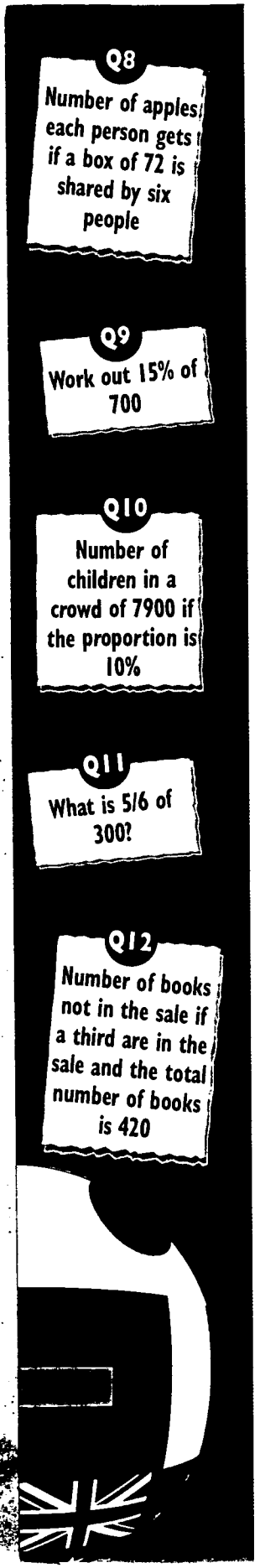
Q3 Add together 5.5, 7.25 and 3.75

Q4 The total of 4.25, 6 and 7.74

Q5 Multiply 6 x 21

Q6 Multiply 16 x 21

Q7 Area of a room 11m x 18m



3. Note that the figures for some columns in the tables contained in this report do not add to 100% (for example, they slightly over-add or under-add). This is due to the way the data has been calculated and weighted and does not affect the validity of the findings. The same is true for the sub-group data for the UK, where the sub-group bases do not always add to the total base for the sample as a whole. Again, this does not affect the validity of the data or the way it is interpreted.

4. In assessing the validity of the findings for each country, it is necessary to bear in mind the margins of error. The approximate margins of error are given below for different sample sizes and different percentage survey findings (at the 95% confidence level). This means that the true value of the percentage can only differ from the one found in the survey by more than + or – the margin of error in 1 in 20 cases (ie. in 1 in 20 identically constructed surveys). Put another way, it can be stated with 95% confidence that the true value for the population from which the sample was drawn is the observed finding + or – the margin of error.

Margins of error for sample sizes at or near

Percentages at or near	*300* +/-	*700* +/-	*800* +/-	*900* +/-	*1000* +/-
4% or 96%	3.1	2.0	1.9	1.8	1.7
6% or 94%	3.7	2.4	2.3	2.1	2.0
10% or 90%	4.7	3.1	2.9	2.7	2.6
15% or 85%	5.6	3.6	3.4	3.2	3.0
20% or 80%	6.2	4.1	3.8	3.6	3.4
30% or 70%	7.1	4.7	4.4	4.1	3.9
40% or 60%	7.6	5.0	4.7	4.4	4.2
50%	7.8	5.1	4.8	4.5	4.3

5. Whether observed differences in the results for any two countries are significant or not depends on the percentage findings and the sample size for the two countries being compared.

Taking Table 1 in this report, 20% of people surveyed in the UK correctly answered all 12 numeracy tasks. This is a considerably lower percentage than for other countries. Having applied an appropriate significance test it can be stated that this difference is statistically significant and that performance in the UK was significantly worse than in all other countries surveyed.

Taking Table 3.in this report, which gives the UK results by gender and socio-economic group, it can be stated that the observed difference between men

and women's performance, where correctly answering all twelve numeracy tasks is concerned, is not quite significant (but, nevertheless, is indicative and in line with what would be expected based on previous research). For socio-economic group, the observed difference in the results between ABC1s and C2DEs is statistically significant.

The differences in the percent scoring 12 correct answers is also statistically significant when comparing 16-34 year olds with those aged 35-54 and 55-60. However the observed difference between those aged 35-54 and those aged 55-60 is not significant.

Where observed differences are not statistically significant they are usually deemed to be indicative ie. although we cannot be certain that the difference is real, it is probable that it does exist in the population from which the sample is drawn.

Appendix 2: Survey Details by Country

THE data contained in this report was taken from surveys conducted by professional market research organisations in participating countries. All, except the agencies used in France and the UK, are members of the Gallup International group of companies. Questionnaire translation and survey data were checked by O.R.B. prior to the preparation of this report. Only data for those aged 18-60 or 16-60 has been extracted for each country in order to preserve the international comparability of the findings.

Details of the survey methodology by country are as follows:

UK

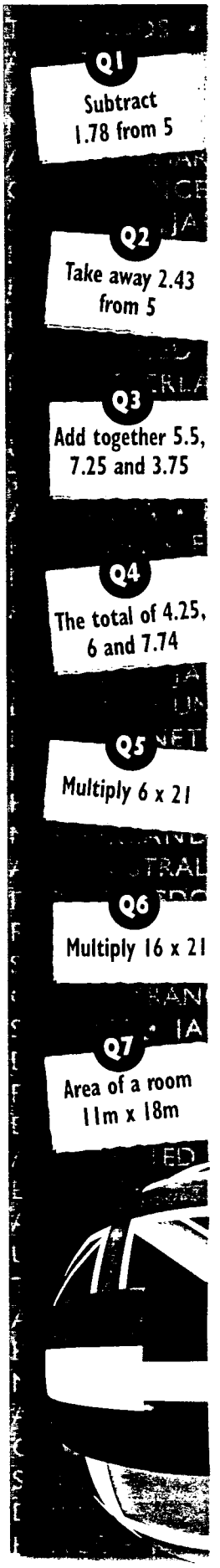
Questions were asked of a sub-group of respondents aged 16-60 drawn from an in-home omnibus survey conducted among a representative sample of 1000 members of the general public aged 16 and over. Respondents were selected from 130 sampling points by random location method.

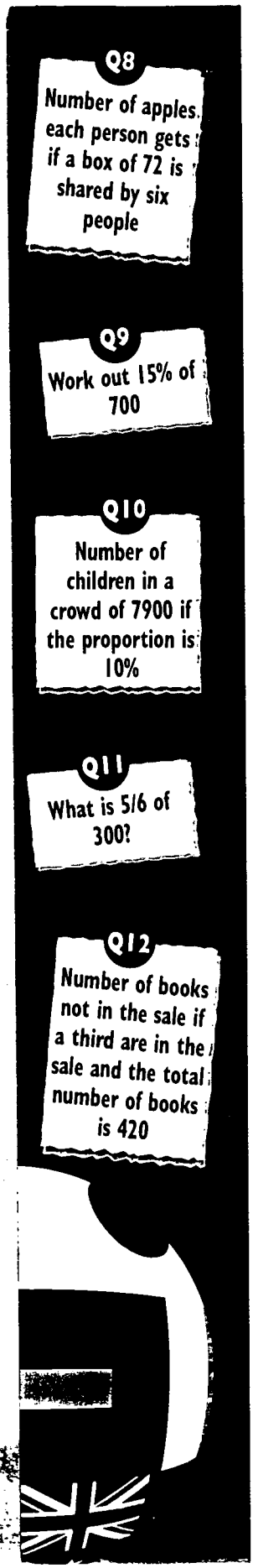
Fieldwork took place in early September 1996 and was conducted by RSGB, Westgate, London.

France

Questions were asked on a face to face omnibus survey conducted among a representative sample of 1029 men and women aged 18 – 65.

Fieldwork took place in September / October 1996 and was conducted by GFK Sofema, Rueil-Malmaison, France.





Netherlands

Questions were asked on a telepanel of respondents comprising 2400 individuals across a representative random sample of 1000 households, each of which is provided with a PC and modem. The questions were presented to respondents in their own homes via the PC. The numeracy questions were completed by 994 respondents aged 16 – 60 years of age. A check was made to ensure that respondents had not used a calculator to work out their answers and only 4 admitted to doing so. The rest answered questions using pen and paper or mental arithmetic or both.

Fieldwork took place between the end of September and early October 1996 and was conducted by NIPO, Amsterdam, Holland.

Sweden

Questions were asked on a face to face omnibus survey representative of men and women in Sweden aged 16 – 60 years of age. The total sample size was 819.

Fieldwork took place in September and October 1996 and was conducted by SIFO AB, Stockholm, Sweden.

Japan

Questions were asked face to face across a representative sample of 955 Japanese residents aged 18 years and over. The methodology used was stratified multi-stage random sampling. The names and addresses of respondents were pre-selected from resident cards maintained by public offices.

Fieldwork took place during early October 1996 and was conducted by The Nippon Research Centre, Tokyo, Japan.

Australia

Questions were asked across an Australia-wide probability sample of 1146 men and women aged 14 and over.

Fieldwork took place during one weekend in early October 1996 and was conducted by The Roy Morgan Research Centre, Melbourne, Australia.

Denmark

Questions were asked across a sample of 882 individuals representative of the Danish population aged 16 – 60.

Fieldwork took place during late October and early November 1996 and was conducted by Gallup / AS, Copenhagen, Denmark.

QUESTIONNAIRE

O. R. B.

Opinion Research Business

PRIVATE AND CONFIDENTIAL

OMNIBUS QUESTIONS
NUMERACY SURVEY

Respondents must be handed a pen and blank paper to work out their answers. The use of a calculator is NOT allowed.

Respondents MUST be encouraged to attempt ALL questions so that refusals are kept to the absolute minimum.

Turning now to the use of arithmetic and mathematics in everyday life, I would be grateful if you could answer the following questions.

(HAND OVER BLANK PAPER AND A PEN) (ENCOURAGE RESPONDENT TO ATTEMPT EVERY QUESTION)
(IF RESPONDENT REFUSES, SAY THAT YOU WOULD BE VERY GRATEFUL FOR THEIR HELP AND THAT REPLIES WILL BE STRICTLY CONFIDENTIAL)

SHOWCARD A

1 Subtract 1.78 from 5.
(1.78 SHOULD BE READ OUT AS ONE POINT SEVEN EIGHT)
(CODE ONE BELOW)

1 3.22
2 Other answer
3 Don't know/could not answer
4 Refused (after seeing question)
5 Refused outright

SHOWCARD B

2 What is left over if you take away 2.43 from 5?
(2.43 SHOULD BE READ OUT AS TWO POINT FOUR THREE)
(CODE ONE BELOW)

1 2.57
2 Other answer
3 Don't know/could not answer
4 Refused (after seeing question)
5 Refused outright

SHOWCARD C

3 Add together 5.5. 7.25 and 3.75.
(5.5, 7.25 AND 3.75 SHOULD BE READ OUT AS FIVE POINT FIVE, SEVEN POINT TWO FIVE AND THREE POINT SEVEN FIVE RESPECTIVELY)
(CODE ONE BELOW)

1 16.5
2 Other answer
3 Don't know/could not answer
4 Refused (after seeing question)
5 Refused outright

SHOWCARD D

4 How much does 4.25; 6 and 7.74 come to in total?
(4.25 AND 7.74 SHOULD BE READ AS FOUR POINT TWO FIVE AND SEVEN POINT SEVEN FOUR RESPECTIVELY)
(CODE ONE BELOW)

1 17.99
2 Other answer
3 Don't know/could not answer
4 Refused (after seeing question)
5 Refused outright

SHOWCARD E

5 Multiply 6 by 21. (CODE ONE BELOW)

1 126
2 Other answer
3 Don't know/could not answer
4 Refused (after seeing question)
5 Refused outright

Q1 Subtract 1.78 from 5

Q2 Take away 2.43 from 5

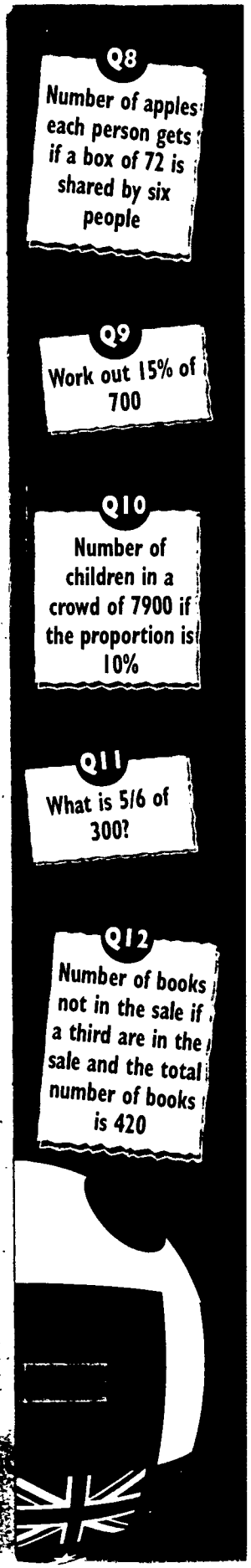
Q3 Add together 5.5, 7.25 and 3.75

Q4 The total of 4.25, 6 and 7.74

Q5 Multiply 6 x 21

Q6 Multiply 16 x 21

Q7 Area of a room 11m x 18m



SHOWCARD F

6 Multiply 16 by 21. (CODE ONE BELOW)

1 336
2 Other answer
3 Don't know/could not answer
4 Refused (after seeing question)
5 Refused outright

SHOWCARD G

7 What is the area of a rectangular room measuring 11 metres by 18 metres.
(CODE ONE BELOW)

1 198 square metres (or metres squared)
2 Other answer
3 Don't know/could not answer
4 Refused (after seeing question)
5 Refused outright

SHOWCARD H

8 Six people share a box of apples. The total number of apples is 72. How many apples does each person get?
(CODE ONE BELOW)

1 12
2 Other answer
3 Don't know/could not answer
4 Refused (after seeing question)
5 Refused outright

SHOWCARD I

9 Work out 15% of 700.
(700 SHOULD BE READ OUT AS SEVEN HUNDRED)
(CODE ONE BELOW)

1 105
2 Other answer
3 Don't know/could not answer
4 Refused (after seeing question)
5 Refused outright

SHOWCARD J

10 The proportion of children in a crowd of 7900 is 10%. How many children are there in total?
(7900 SHOULD BE READ OUT AS SEVEN THOUSAND NINE HUNDRED)
(CODE ONE BELOW)

1 790
2 Other answer
3 Don't know/could not answer
4 Refused (after seeing question)
5 Refused outright

SHOWCARD K

11 What is five sixths of 300?
(CODE ONE BELOW)

1 250
2 Other answer
3 Don't know/could not answer
4 Refused (after seeing question)
5 Refused outright

SHOWCARD L

12 A bookshop contains 420 books. A third of the books are in the sale. What is the total number of books not in the sale?
(420 SHOULD BE READ OUT AS FOUR HUNDRED AND TWENTY)
(CODE ONE BELOW)

1 280
2 Other answer
3 Don't know/could not answer
4 Refused (after seeing question)
5 Refused outright

13. **TO BE ANSWERED BY INTERVIEWER**
Respondent had . . . (CODE ONE BELOW)

1 A great deal of difficulty answering questions
2 A little difficulty answering questions
3 Hardly any/no difficulty answering questions
4 Don't know / can't say.

Q1
Subtract 1.78 from 5

Q2
Take away 2.43 from 5

Q3
Add together 5.5, 7.25 and 3.75

Q4
The total of 4.25, 6 and 7.74

Q5
Multiply 6 x 21

Q6
Multiply 16 x 21

Q7
Area of a room 11m x 18m

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Q8
Number of apples each person gets if a box of 72 is shared by six people

Q9
Work out 15% of 700

Q10
Number of children in a crowd of 7900 if the proportion is 10%

Q11
What is 5/6 of 300?

Q12
Number of books not in the sale if a third are in the sale and the total number of books is 420

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