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PROGRAMME FOR INTERNATIONAL STUDENT ASSESSMENT 2000 – SCOTLAND ANALYSIS

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This Statistics Publication Notice presents information on the Scottish results from the Programme for International Student Assessment which took place in 2000. The Programme for International Student Assessment (PISA) was set up by the OECD to assess the performance of 15 year olds in reading literacy, mathematical literacy and scientific literacy in its member countries. The results are intended to contribute school outcome measures for the OECD educational indicators programme. PISA is a three phase study. The first phase took place in 2000, the second was in 2003, and the third will take place in 2006. In 2000 the main domain assessed was reading literacy. Mathematical literacy and scientific literacy were also assessed, but to a lesser extent. In 2003, the main domain was mathematical literacy. First results from PISA 2003 will be published in December 2004.

The main findings for PISA 2000 for Scotland are:

Variations in test scores

- Scottish 15 year olds were 6th in the rankings of reading literacy test scores of OECD countries. The level of variation among Scottish students was close to the OECD average. Females outscored males in all countries participating in the study.
- 3.3 per cent of 15 year olds in Scotland failed to attain the lowest reading proficiency level, demonstrating serious deficiencies in their ability to use reading as a tool for the acquisition of knowledge and skills. This proportion is much less than the OECD average of 6.2 per cent.
- 15.3 per cent of pupils in Scotland achieved the highest reading level. This is a lot higher than the OECD average of 9.4 per cent.
- 15 year olds in Scotland ranked equal fifth in a ranking of mathematical literacy test scores of OECD countries. The level of variation among Scottish students was lower than the OECD average. Male students outperformed females by a small margin.
- 15 year olds in Scotland ranked 9th in scientific literacy test scores, well above the OECD average. The level of variation among Scottish students was close to the OECD average. Male students in Scotland outperformed females by a small margin, although there was a greater variation in the scores of males.

Family and Home Life

- In Scotland, native students perform better than first generation students who, in turn, perform better than non-native student. The difference between these groups is smaller in Scotland than the OECD average. It is not surprising to find that the language spoken at home also has a very significant effect on the reading literacy scores of 15 year olds.
- Students who have regular discussions with their parents scored considerably higher than those students who had discussions never or hardly ever.

School Life

- Comparisons with the international data reveal that only in the UK as a whole was the level of support provided by teachers considered by students to be as high as that in Scotland.
- A quarter of students in Scotland reported that in most or every English language lesson there is noise and disorder. Overall, however, Scotland's disciplinary climate was more positive than most OECD countries.
- 37 per cent of 15 year olds in school reported being absent from school at least once during a two week period. The same proportion also reported arriving late for school at least once over the same period. Sixty five per cent of 15 year olds attended schools where the headteacher reported that learning was hindered by absenteeism.
- Over 70 per cent of 15 year olds in both Scotland and the UK as a whole felt that they got on well with most teachers and almost 90 per cent also felt that if they needed extra help from teachers, they would receive it
- 85 per cent of 15 year olds in Scotland felt like they belonged at school. However, 27 per cent did not want to go to school, and 56 per cent often felt bored there.

Engagement with reading

- One third of Scottish 15 year olds never or hardly ever read for pleasure. Those who do were much more likely to read magazines or newspapers than they were to read books.
- Those reading a large amount of fiction tended to score highest in the reading tests. Pupils reading a large amount of non-fiction, or reading from the internet also tended to perform well above average. Only the reading of comics failed to have a positive correlation with reading scores.

School Staff and Resources

- Thirteen per cent of 15 year olds in Scotland were enrolled in schools where the headteacher was concerned about the lack of educational material in the library. This figure is lower than all but two of the OECD countries.
- One third of 15 year olds in Scotland attend schools where the headteacher views a lack of computers and multi-media resources as a hindrance to learning. However, the ratio of students per computer in secondary schools in Scotland is less than or equal to that in all other OECD countries and the percentage of these computers which is available to students is higher than in any other country.

CONTENTS AND LIST OF TABLES

Section 1 – Background of Study	7	
Section 2 – Variation in Test Scores	10	
Table 1	Variation in performance on the PISA reading literacy scale, by country	10
Chart 1	Mean scores in reading literacy, and score at 10th and 90th percentiles, by country	11
Table 2	PISA reading proficiency levels, by country	12
Chart 2	Proportion of male and female students performing at each reading literacy level, Scotland	13
Table 3a	Proportion of students performing at each reading proficiency level on the retrieving information scale, Scotland	14
Table 3b	Proportion of students performing at each reading proficiency level on the retrieving information scale, UK	14
Table 4a	Proportion of students performing at each reading proficiency level on the interpreting scale, Scotland	14
Table 4b	Proportion of students performing at each reading proficiency level on the interpreting scale, UK	14
Table 5a	Proportion of students performing at each reading proficiency level on the reflecting and evaluating scale, Scotland	15
Table 5b	Proportion of students performing at each reading proficiency level on the reflecting and evaluating scale, UK	15
Chart 3	Proportion of 15 year olds performing at each level of the three domains of reading literacy, Scotland	15
Table 6	Variation in performance on the PISA mathematical literacy scale, by country	16
Chart 4	Mean scores in mathematical literacy, and scores at 10th and 90th percentiles, by country	17
Table 7	Variation in performance on the PISA scientific literacy scale, by country	18
Chart 5	Mean scores in scientific literacy, and scores at 10th and 90th percentiles, by country	19
Table 8a	10th, 25th, 50th, 75th and 90th percentiles on the PISA proficiency scales, Scotland	20
Table 8b	10th, 25th, 50th, 75th and 90th percentiles on the PISA proficiency scales, UK	20
Table 9a	Performance of male students on the PISA proficiency scales, Scotland	21
Table 9b	Performance of male students on the PISA proficiency scales, UK	21
Chart 6	Performance of male students on the PISA proficiency scales for reading, mathematics and science, Scotland and UK	22
Section 3 –Family and Home Life	23	
Table 10	Percentage of students and performance on the PISA reading literacy scale, by working status of parents, Scotland, UK & OECD	23
Table 11	Percentage of students and performance on the PISA reading literacy scale, by birth order, Scotland, UK & OECD	23
Table 12	Percentage of students and performance on the PISA reading literacy scale, by students' and parents' country of birth, by country	24
Table 13	Percentage of students and performance on the PISA reading literacy scale, by language spoken at home, by country	25
Table 14a	Percentage of students and performance on the PISA reading literacy scale by responses to questions on participation in cultural activities, Scotland	26

<i>Table 14b</i>	<i>Percentage of students and performance on the PISA reading literacy scale by responses to questions on participation in cultural activities, UK</i>	26
<i>Table 14c</i>	<i>Percentage of students and performance on the PISA reading literacy scale by responses to questions on participation in cultural activities, OECD</i>	26
<i>Table 15a</i>	<i>Percentage of students and performance on the PISA reading literacy scale by responses to questions on participation in activities with their parents, Scotland</i>	27
<i>Table 15b</i>	<i>Percentage of students and performance on the PISA reading literacy scale by responses to questions on participation in activities with their parents, UK</i>	27
<i>Table 15c</i>	<i>Percentage of students and performance on the PISA reading literacy scale by responses to questions on participation in activities with their parents, OECD</i>	27
Section 4 – School Life		28
<i>Table 16</i>	<i>Percentage of students by responses to questions on discipline and support in English classes, Scotland, UK & OECD</i>	28
<i>Table 17</i>	<i>PISA indices of teacher support and change in the PISA reading literacy score, by country</i>	29
<i>Chart 7</i>	<i>Percentage of students who report that in most or every test language lesson, the teacher shows an interest in every student's learning</i>	30
<i>Table 18</i>	<i>PISA index of disciplinary climate and change in the PISA reading literacy score, by country</i>	31
<i>Chart 8</i>	<i>Percentage of students who report that in most or every test language lesson the teacher has to wait a long time for students to quieten down</i>	32
<i>Chart 9</i>	<i>Percentage of students who report that in most or every test language lesson students cannot work well</i>	32
<i>Table 19a</i>	<i>Percentage and performance on the PISA reading literacy scale of students who reported being absent from school, Scotland</i>	33
<i>Table 19b</i>	<i>Percentage and performance on the PISA reading literacy scale of students who reported being absent from school, UK</i>	33
<i>Table 19c</i>	<i>Percentage and performance on the PISA reading literacy scale of students who reported being absent from school, OECD</i>	33
<i>Table 20a</i>	<i>Percentage and performance on the PISA reading literacy scale of students who reported good relationships with teachers, Scotland</i>	34
<i>Table 20b</i>	<i>Percentage and performance on the PISA reading literacy scale of students who reported good relationships with teachers, UK</i>	34
<i>Table 20c</i>	<i>Percentage and performance on the PISA reading literacy scale of students who reported good relationships with teachers, OECD</i>	34
<i>Table 21a</i>	<i>Percentage and performance on the PISA reading literacy scale of students by responses to questions on engagement with school, Scotland</i>	35
<i>Table 21b</i>	<i>Percentage and performance on the PISA reading literacy scale of students by responses to questions on engagement with school, UK</i>	35
<i>Table 21c</i>	<i>Percentage and performance on the PISA reading literacy scale of students by responses to questions on engagement with school, OECD</i>	35
<i>Table 22</i>	<i>Percentage of students by responses to questions on engagement with school, by country</i>	36
<i>Chart 10</i>	<i>Percentage of students who agree with the statement that they feel lonely at school</i>	37
<i>Chart 11</i>	<i>Percentage of students who agree with the statement that they often feel bored at school</i>	37
<i>Table 23a</i>	<i>Percentage of students by responses to questions on study techniques, Scotland</i>	38

<i>Table 23b</i>	<i>Performance on the PISA reading literacy scale of students by responses to questions on study techniques, Scotland</i>	38
<i>Table 24a</i>	<i>Percentage and performance on the PISA reading literacy scale of students by responses to questions on homework, Scotland</i>	39
<i>Table 24b</i>	<i>Percentage and performance on the PISA reading literacy scale of students by responses to questions on homework, UK</i>	39
<i>Table 24c</i>	<i>Percentage and performance on the PISA reading literacy scale of students by responses to questions on homework, OECD</i>	39
<i>Table 25</i>	<i>Percentage of students and performance on the PISA reading literacy scale, by length of time spent on English homework, Scotland, UK & OECD</i>	40
<i>Table 26</i>	<i>Percentage of students by responses to questions on homework and pressure to achieve, by country</i>	41
<i>Chart 12</i>	<i>Percentage of students who report that most of the time or always they are given interesting homework</i>	42
<i>Chart 13</i>	<i>Percentage of students who report that in most or all test language lessons the teacher wants students to work hard</i>	42
Section 5 – Engagement with Reading		43
<i>Table 27</i>	<i>Percentage of students and performance on the PISA reading literacy scale, by length of time spent reading for pleasure, Scotland, UK & OECD</i>	43
<i>Table 28a</i>	<i>Percentage and performance on the PISA reading literacy scale of students by responses to questions on reading, Scotland</i>	44
<i>Table 28b</i>	<i>Percentage and performance on the PISA reading literacy scale of students by responses to questions on reading, UK</i>	44
<i>Table 28c</i>	<i>Percentage and performance on the PISA reading literacy scale of students by responses to questions on reading, OECD</i>	44
<i>Table 29a</i>	<i>Percentage and performance on the PISA reading literacy scale of students by responses to questions on reading material, Scotland</i>	45
<i>Table 29b</i>	<i>Percentage and performance on the PISA reading literacy scale of students by responses to questions on reading material, UK</i>	45
<i>Table 29c</i>	<i>Percentage and performance on the PISA reading literacy scale of students by responses to questions on reading material, OECD</i>	45
<i>Table 30</i>	<i>Percentage of students and performance on the PISA reading literacy scale, by number of books in their home, Scotland, UK & OECD</i>	46
Section 6 – School Staff and Resources		47
<i>Table 31a</i>	<i>Change in the PISA reading literacy score per 100 students, Scotland & UK</i>	47
<i>Table 31b</i>	<i>Change in the PISA reading literacy score per pupil per teacher, Scotland & UK</i>	47
<i>Table 31c</i>	<i>Change in the PISA reading literacy score per computer per pupil, Scotland & UK</i>	47
<i>Table 32</i>	<i>Quality and use of school resources, by country</i>	48
<i>Table 33a</i>	<i>Percentage and performance on the PISA reading literacy scale of students by responses to questions on use of school resources, Scotland</i>	49
<i>Table 33b</i>	<i>Percentage and performance on the PISA reading literacy scale of students by responses to questions on use of school resources, UK</i>	49
<i>Table 33c</i>	<i>Percentage and performance on the PISA reading literacy scale of students by responses to questions on use of school resources, OECD</i>	49
<i>Table 34</i>	<i>Percentage of students by responses to questions on availability of computers and computer networks in schools, by country</i>	50
<i>Table 35</i>	<i>Percentage of students by responses to questions on availability of computers to use at home and at school, by country</i>	51

<i>Chart 14</i>	<i>Availability of computers to use at school and at home at least a few times each week, by country</i>	<i>51</i>
<i>Table 36</i>	<i>Percentage of students by responses to questions on frequency of use of computers at home and at school, by country</i>	<i>52</i>
<i>Chart 15</i>	<i>Percentage of 15-year-olds who reported never using computers at home and at school, by country</i>	<i>52</i>
<i>Table 37</i>	<i>PISA index of comfort with and perceived ability to use computers, by gender, by country</i>	<i>53</i>
<i>Chart 16</i>	<i>Percentage of 15-year-old males and females who reported that they were very comfortable or comfortable using a computer</i>	<i>53</i>
<i>Table 38</i>	<i>PISA index of interest in computers, by gender, by country</i>	<i>54</i>

SECTION 1 - BACKGROUND OF STUDY

1. PISA looked at young people's ability to use their knowledge and skills in order to meet real-life challenges rather than how well they had mastered a specific school curriculum. For instance, PISA defines reading literacy as the ability to understand, use and reflect upon written texts to participate effectively in life.
2. PISA provides a broad assessment of comparative learning outcomes towards the end of compulsory schooling. This can guide policy decisions and provide insights into the factors that contribute to the development of knowledge and skills, and the extent to which these factors are common to different countries. In the 2003 and 2006 studies a proportion of the test items from the previous study are retained to provide a measure of performance change over time.
3. The results of PISA 2000 were published by the OECD in 2001 in '*Knowledge and Skills for Life: First Results from PISA 2000*'. There have been two thematic reports since; '*Reading for Change: Performance and Engagement Across Countries*' and '*Literacy Skills for the World of Tomorrow*'. Scotland took part in PISA as part of the UK¹. This meant that the Scottish results were not disaggregated in the international reports. Instead, our performance in the 3 subjects was published in our own national report in January 2002. The purpose of the analysis that is described below is to provide further interrogation of our data. The analysis is not, however, exhaustive and we encourage researchers to undertake further analysis by accessing the database at www.pisa.oecd.org².

Design of PISA

4. In 2000 over a quarter of a million students took part in PISA from the 32 participating countries. A further 13 countries undertook PISA in 2002 and the results for these countries are to be reported separately. PISA used pencil and paper assessments, lasting two hours for each student, including multiple choice questions and questions requiring students to construct their answers. Each student's assessment tasks were drawn from a total of seven hours of assessment items, with different students taking different combinations of these items. Students also completed a background questionnaire that took about 30 minutes and head teachers completed a questionnaire about their schools. This analysis concentrates on student assessments and questionnaires.
5. In Scotland, the intended school sample was 120 and completed tests and questionnaires were received from 99 schools, an 82 per cent response rate, which was within the PISA sampling limit. The sample of schools was drawn as a stratified, random sample representative of all secondary schools in Scotland. In total over 2,500 students in the sample schools completed tests and questionnaires, the sample drawn randomly from students with a date of birth during a specified period.
6. The PISA scores for each subject area were scaled so that across the OECD the average score is 500 and around two-thirds of students achieve between 400 and 600 points.

Reading Literacy

7. Reading literacy is the ability to understand, use and reflect on written texts in order to achieve one's goals, to develop one's own knowledge and potential, and to participate effectively in society. This definition goes beyond the notion that reading means decoding written material and literal comprehension. Rather, reading also incorporates understanding and reflecting on texts, for a variety of reasons and in a variety of contexts. PISA's assessment of reading literacy reflects three

¹ Wales did not participate in PISA 2000 so throughout this report the reference to the UK is to Scotland, England and Northern Ireland.

² The subnational code for Scotland is 1

dimensions: aspect of reading task; form of reading material; and the use for which the text is constructed.

8. Reading literacy was measured on three scales - on retrieving information, on interpreting, and on reflecting and evaluating. The scores on each scale represent degrees of proficiency in particular aspects of reading literacy. Each of the three reading literacy scales is divided into six levels of knowledge and skills. Students at a particular level not only demonstrate the knowledge and skills associated with that level but also the proficiencies required at lower levels.

9. Students proficient at *Level 5 (over 625 points)* are capable of completing sophisticated reading tasks, such as managing information that is difficult to find in unfamiliar texts; showing detailed understanding of such texts and inferring which information in the text is relevant to the task; and being able to evaluate critically and build hypotheses, draw on specialised knowledge, and accommodate concepts that may be contrary to expectations.

10. Students proficient at *Level 4 (553 to 625 points)* are capable of difficult reading tasks, such as locating embedded information, construing meaning from nuances of language and critically evaluating a text.

11. Students proficient at *Level 3 (481 to 552 points)* are capable of reading tasks of moderate complexity, such as locating multiple pieces of information, drawing links between different parts of the text, and relating it to familiar everyday knowledge.

12. Students proficient at *Level 2 (408 to 480 points)* are capable of basic reading tasks, such as locating straightforward information, making low-level inferences of various types, deciding what a well-defined part of the text means, and using some outside knowledge to understand it.

13. Students proficient at *Level 1 (335 to 407 points)* are capable of completing only the least complex reading tasks developed for PISA, such as locating a single piece of information, identifying the main theme of a text or making a simple connection with everyday knowledge.

14. Students performing *below Level 1 (below 335 points)* are not able to show the most basic skills that PISA sought to measure. Such performance should not be interpreted to mean those students have no literacy skills at all, but they could be said to have serious deficiencies in their ability to use reading literacy as a tool for the acquisition of knowledge and skills in other areas.

Mathematical and Scientific Literacy

15. Mathematical literacy in PISA concerns students' ability to recognise and interpret mathematical problems encountered in their world, to translate these problems into a mathematical context, and to use mathematical knowledge and procedures to solve the problems within their mathematical context. It also involves the way that students interpret the results in terms of the original problem, reflect upon the methods applied, and formulate and communicate the outcomes.

16. Scientific literacy reflects students' ability to use scientific knowledge, to recognise scientific questions and to identify what is involved in scientific investigations, to relate scientific data to claims and conclusions, and to communicate these aspects of science.

Analysis

17. The analysis contained within this document is based largely on the relationships between reading literacy scores and responses to the student questionnaires. Reading scores were used because this was the main subject assessed. No causal links are implied, as many factors not covered by the questionnaires are likely to influence the performance of individual pupils. However, the analysis

aims to inform policy makers of factors which are to some extent correlated with test scores, so that policy in these areas may be further explored.

18. Standard errors naturally occur with the methodology used for sampling and testing. However, these are not high (see tables 1 & 2), and so have been ignored in subsequent tables.

19. International comparisons are taken from the OECD publication: Education at a Glance 2002. Calculation of indices included in the tables is explained in the annex to the OECD publication. Scotland, UK and OECD figures have been extracted from the OECD PISA database.

Further Information

20. More details can be found in the Scottish PISA Report and in the OECD executive summary of First Results from PISA: Knowledge and Skills for Life:

<http://www.scotland.gov.uk/library3/education/pisa-00.asp>
<http://www.pisa.oecd.org/Docs/Download/PISAExeSummary.pdf>

21. Details on methodology can be found in the annex to Education at a Glance, and on the PISA website, from which data can also be downloaded:

<http://www.oecd.org/els/education/eag2002>
<http://www.pisa.oecd.org>

22. Public enquiries (non-media) about the information contained in this Statistics Publication Notice should be addressed to Donna Hosie, Assistant Statistician, The Scottish Executive Education Department, Education and Children Statistics Unit, 1-A Victoria Quay, EH6 6QQ. Tel. 0131 244 0304 or email to: educ.outcomes.stats@scotland.gsi.gov.uk

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SECTION 2 – VARIATION IN TEST SCORES

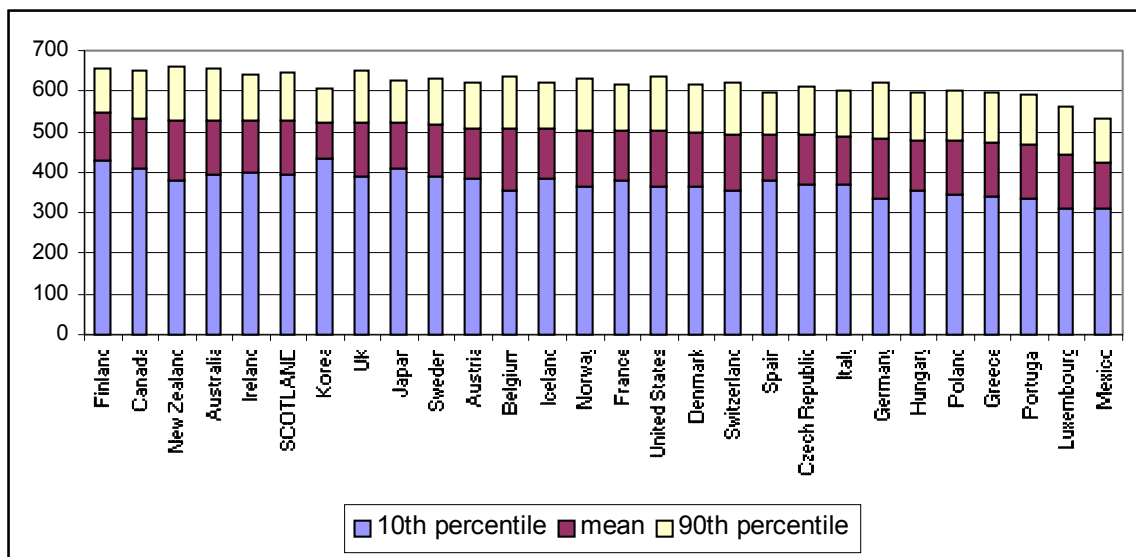
Performance in Reading Literacy

1. Fifteen year olds in Scotland ranked sixth overall in a ranking of reading literacy test scores of OECD countries, behind Finland, Canada, New Zealand, Australia and Ireland. The level of variation among Scottish students was close to the OECD average, but much lower than in countries such as Belgium and Germany. Variation was lowest in Korea. Females in Scotland substantially outscored males. The same was true in all countries participating in the study, with the smallest difference in Korea, and the highest in Latvia.

Table 1. Variation in performance on the PISA reading literacy scale, by country

	Mean		Standard deviation	Percentiles					
	Mean score	S.E.	S.D.	5th Score	10th Score	25th Score	75th Score	90th Score	95th Score
OECD countries									
Australia	528	(3.5)	102	354	394	458	602	656	685
Austria	507	(2.4)	93	341	383	447	573	621	648
Belgium	507	(3.6)	107	308	354	437	587	634	659
Canada	534	(1.6)	95	371	410	472	600	652	681
Czech Republic	492	(2.4)	96	320	368	433	557	610	638
Denmark	497	(2.4)	98	326	367	434	566	617	645
Finland	546	(2.6)	89	390	429	492	608	654	681
France	505	(2.7)	92	344	381	444	570	619	645
Germany	484	(2.5)	111	284	335	417	563	619	650
Greece	474	(5.0)	97	305	342	409	543	595	625
Hungary	480	(4.0)	94	320	354	414	549	598	626
Iceland	507	(1.5)	92	345	383	447	573	621	647
Ireland	527	(3.2)	94	360	401	468	593	641	669
Italy	487	(2.9)	91	331	368	429	552	601	627
Japan	522	(5.2)	86	366	407	471	582	625	650
Korea	525	(2.4)	70	402	433	481	574	608	629
Luxembourg	441	(1.6)	100	267	311	378	513	564	592
Mexico	422	(3.3)	86	284	311	360	482	535	565
New Zealand	529	(2.8)	108	337	382	459	606	661	693
Norway	505	(2.8)	104	320	364	440	579	631	660
Poland	479	(4.5)	100	304	343	414	551	603	631
Portugal	470	(4.5)	97	300	337	403	541	592	620
SCOTLAND	526	(3.8)	99	356	394	460	596	647	680
Male	511		99	343	380	446	582	632	663
Female	542		97	378	417	478	609	660	694
Spain	493	(2.7)	85	344	379	436	553	597	620
Sweden	516	(2.2)	92	354	392	456	581	630	658
Switzerland	494	(4.2)	102	316	355	426	567	621	651
United Kingdom	523	(2.6)	100	352	391	458	595	651	682
United States	504	(7.1)	105	320	363	436	577	636	669
OECD total	499	(2.0)	100	322	363	433	569	622	653
Country mean	500	(0.6)	100	324	366	435	571	623	652
Non-OECD countries									
Brazil	396	(3.1)	86	255	288	339	452	507	539
Latvia	458	(5.3)	102	283	322	390	530	586	617
Liechtenstein	483	(4.1)	96	310	350	419	551	601	626
Russian Federation	462	(4.2)	92	306	340	400	526	579	608

Chart 1. Mean scores in reading literacy, and score at 10th and 90th percentiles, by country



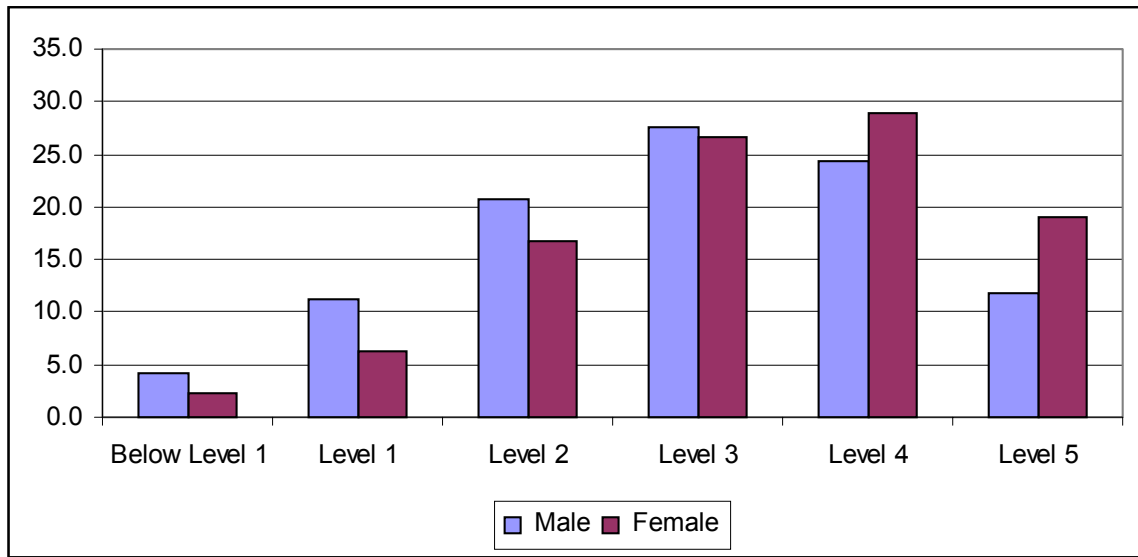
Reading Proficiency Levels

2. In Scotland, 3.3 per cent of 15 year olds failed to attain the lowest reading proficiency level, demonstrating serious deficiencies in their ability to use reading as a tool for the acquisition of knowledge and skills. However, the proportion of students who failed to reach this level across all OECD countries was much higher. Only in Korea, Japan and Ireland did fewer than 3.3 per cent of pupils fail to reach this level. The highest reading level was achieved by 15.3 per cent of pupils in Scotland. This was bettered in only Australia, Canada, Finland, New Zealand and the UK as a whole.

Table 2. PISA reading proficiency levels, by country

	Proficiency levels											
	Below Level 1 (less than 335 score points)		Level 1 (from 335 to 407 score points)		Level 2 (from 408 to 480 score points)		Level 3 (from 481 to 552 score points)		Level 4 (from 553 to 625 score points)		Level 5 (above 625 score points)	
	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD countries												
Australia	3.3	(0.5)	9.1	(0.8)	19.0	(1.1)	25.7	(1.1)	25.3	(0.9)	17.6	(1.2)
Austria	4.4	(0.4)	10.2	(0.6)	21.7	(0.9)	29.9	(1.2)	24.9	(1.0)	8.8	(0.8)
Belgium	7.7	(1.0)	11.3	(0.7)	16.8	(0.7)	25.8	(0.9)	26.3	(0.9)	12.0	(0.7)
Canada	2.4	(0.3)	7.2	(0.3)	18.0	(0.4)	28.0	(0.5)	27.7	(0.6)	16.8	(0.5)
Czech Republic	6.1	(0.6)	11.4	(0.7)	24.8	(1.2)	30.9	(1.1)	19.8	(0.8)	7.0	(0.6)
Denmark	5.9	(0.6)	12.0	(0.7)	22.5	(0.9)	29.5	(1.0)	22.0	(0.9)	8.1	(0.5)
Finland	1.7	(0.5)	5.2	(0.4)	14.3	(0.7)	28.7	(0.8)	31.6	(0.9)	18.5	(0.9)
France	4.2	(0.6)	11.0	(0.8)	22.0	(0.8)	30.6	(1.0)	23.7	(0.9)	8.5	(0.6)
Germany	9.9	(0.7)	12.7	(0.6)	22.3	(0.8)	26.8	(1.0)	19.4	(1.0)	8.8	(0.5)
Greece	8.7	(1.2)	15.7	(1.4)	25.9	(1.4)	28.1	(1.7)	16.7	(1.4)	5.0	(0.7)
Hungary	6.9	(0.7)	15.8	(1.2)	25.0	(1.1)	28.8	(1.3)	18.5	(1.1)	5.1	(0.8)
Iceland	4.0	(0.3)	10.5	(0.6)	22.0	(0.8)	30.8	(0.9)	23.6	(1.1)	9.1	(0.7)
Ireland	3.1	(0.5)	7.9	(0.8)	17.9	(0.9)	29.7	(1.1)	27.1	(1.1)	14.2	(0.8)
Italy	5.4	(0.9)	13.5	(0.9)	25.6	(1.0)	30.6	(1.0)	19.5	(1.1)	5.3	(0.5)
Japan	2.7	(0.6)	7.3	(1.1)	18.0	(1.3)	33.3	(1.3)	28.8	(1.7)	9.9	(1.1)
Korea	0.9	(0.2)	4.8	(0.6)	18.6	(0.9)	38.8	(1.1)	31.1	(1.2)	5.7	(0.6)
Luxembourg	14.2	(0.7)	20.9	(0.8)	27.5	(1.3)	24.6	(1.1)	11.2	(0.5)	1.7	(0.3)
Mexico	16.1	(1.2)	28.1	(1.4)	30.3	(1.1)	18.8	(1.2)	6.0	(0.7)	0.9	(0.2)
New Zealand	4.8	(0.5)	8.9	(0.5)	17.2	(0.9)	24.6	(1.1)	25.8	(1.1)	18.7	(1.0)
Norway	6.3	(0.6)	11.2	(0.8)	19.5	(0.8)	28.1	(0.8)	23.7	(0.9)	11.2	(0.7)
Poland	8.7	(1.0)	14.6	(1.0)	24.1	(1.4)	28.2	(1.3)	18.6	(1.3)	5.9	(1.0)
Portugal	9.6	(1.0)	16.7	(1.2)	25.3	(1.0)	27.5	(1.2)	16.8	(1.1)	4.2	(0.5)
SCOTLAND	3.3	(0.6)	9.0	(0.8)	18.8	(1.0)	27.1	(1.1)	26.5	(1.3)	15.3	(1.0)
Male	4.3		11.2		20.7		27.6		24.4		11.8	
Female	2.4		6.3		16.8		26.7		28.8		19.0	
Spain	4.1	(0.5)	12.2	(0.9)	25.7	(0.7)	32.8	(1.0)	21.1	(0.9)	4.2	(0.5)
Sweden	3.3	(0.4)	9.3	(0.6)	20.3	(0.7)	30.4	(1.0)	25.6	(1.0)	11.2	(0.7)
Switzerland	7.0	(0.7)	13.3	(0.9)	21.4	(1.0)	28.0	(1.0)	21.0	(1.0)	9.2	(1.0)
United Kingdom	3.6	(0.4)	9.2	(0.5)	19.6	(0.7)	27.5	(0.9)	24.4	(0.9)	15.6	(1.0)
United States	6.4	(1.2)	11.5	(1.2)	21.0	(1.2)	27.4	(1.3)	21.5	(1.4)	12.2	(1.4)
OECD total	6.2	(0.4)	12.1	(0.4)	21.8	(0.4)	28.6	(0.4)	21.8	(0.4)	9.4	(0.4)
Country mean	6.0	(0.1)	11.9	(0.2)	21.7	(0.2)	28.7	(0.2)	22.3	(0.2)	9.5	(0.1)
Non-OECD countries												
Brazil	23.3	(1.4)	32.5	(1.2)	27.7	(1.3)	12.9	(1.1)	3.1	(0.5)	0.6	(0.2)
Latvia	12.7	(1.3)	17.9	(1.3)	26.3	(1.1)	25.2	(1.3)	13.8	(1.1)	4.1	(0.6)
Liechtenstein	7.6	(1.5)	14.5	(2.1)	23.2	(2.9)	30.1	(3.4)	19.5	(2.2)	5.1	(1.6)
Russian Federation	9.0	(1.0)	18.5	(1.1)	29.2	(0.8)	26.9	(1.1)	13.3	(1.0)	3.2	(0.5)

Chart 2. Proportion of male and female students performing at each reading literacy level, Scotland



Reading Proficiency Levels (Reading Domains)

3. Reading literacy was measured on three scales - on retrieving information, on interpreting and on reflecting and evaluating. The scores on each scale represent degrees of proficiency in particular aspects of reading literacy.

4. In Scotland, the highest scores were achieved on the reflecting and evaluating scale. The gap between the two genders was largest also on this scale, although males were comfortably outperformed by females on all three scales.

5. Students in Scotland performed slightly better on retrieving information than on interpreting, although the difference was not significant.

6. Students in the UK as a whole performed even higher on the reflecting and evaluating scale than students in Scotland, despite lower overall reading performances. Scores were slightly lower than in Scotland on the retrieving information scale, and considerably lower on the interpreting scale. Gender differences were smaller in the UK on all three scales.

Table 3a. Proportion of students performing at each reading proficiency level on the retrieving information scale, Scotland

Proportion of students performing at each proficiency level for retrieving information							
Scotland	mean score	proficiency levels					
		below level 1	level 1	level 2	level 3	level 4	level 5
All	525	4.2%	9.0%	18.0%	26.8%	25.7%	16.4%
Female	540	2.6%	6.8%	16.9%	26.5%	27.0%	20.3%
Male	512	5.6%	10.8%	18.9%	27.2%	24.8%	12.8%

Table 3b. Proportion of students performing at each reading proficiency level on the retrieving information scale, UK

Proportion of students performing at each proficiency level for retrieving information							
UK	mean score	proficiency levels					
		below level 1	level 1	level 2	level 3	level 4	level 5
All	523	4.4%	9.4%	18.6%	26.9%	24.1%	16.5%
Female	534	3.0%	8.3%	17.3%	26.7%	26.5%	18.3%
Male	515	5.5%	10.1%	19.9%	27.4%	22.0%	15.1%

Table 4a. Proportion of students performing at each reading proficiency level on the interpreting scale, Scotland

Proportion of students performing at each proficiency level for interpreting							
Scotland	mean score	proficiency levels					
		below level 1	level 1	level 2	level 3	level 4	level 5
All	523	3.9%	10.0%	19.0%	26.5%	24.4%	16.2%
Female	537	2.4%	8.1%	17.3%	26.7%	25.9%	19.5%
Male	510	5.5%	11.5%	20.6%	26.2%	23.1%	13.1%

Table 4b. Proportion of students performing at each reading proficiency level on the interpreting scale, UK

Proportion of students performing at each proficiency level for interpreting							
UK	mean score	proficiency levels					
		below level 1	level 1	level 2	level 3	level 4	level 5
All	514	4.4%	11.0%	21.1%	26.6%	22.9%	14.0%
Female	527	3.0%	9.3%	19.2%	27.0%	25.5%	16.1%
Male	503	5.6%	12.2%	22.9%	26.4%	20.7%	12.2%

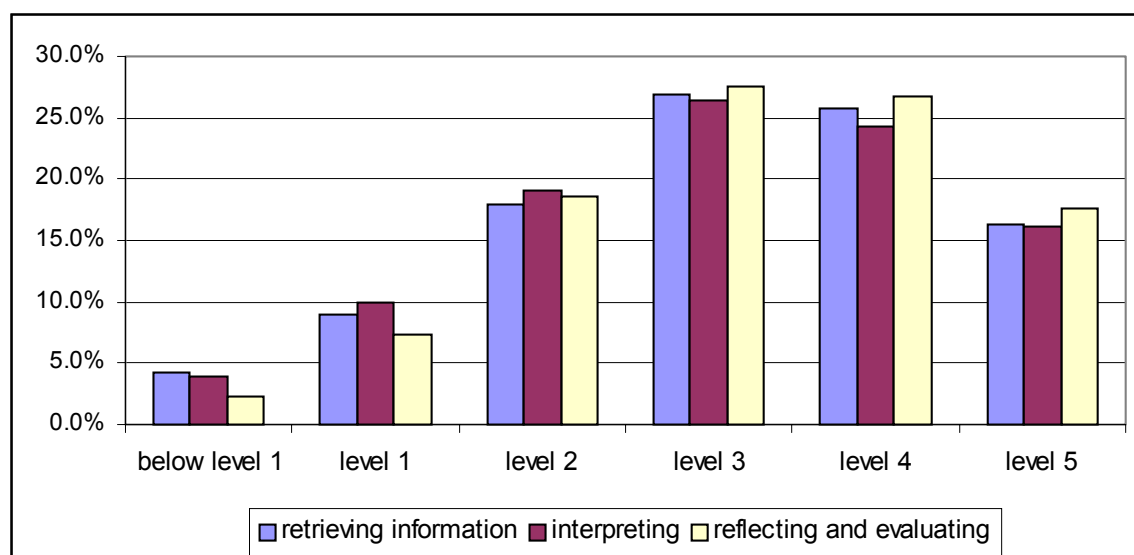
Table 5a. Proportion of students performing at each reading proficiency level on the reflecting and evaluating scale, Scotland

Proportion of students performing at each proficiency level for reflecting and evaluating							
Scotland	mean score	proficiency levels					
		below level 1	level 1	level 2	level 3	level 4	level 5
All	535	2.2%	7.3%	18.6%	27.5%	26.8%	17.6%
Female	554	1.4%	4.7%	15.7%	26.5%	29.4%	22.4%
Male	518	3.2%	9.6%	21.3%	28.5%	24.4%	13.1%

Table 5b. Proportion of students performing at each reading proficiency level on the reflecting and evaluating scale, UK

Proportion of students performing at each proficiency level for reflecting and evaluating							
UK	mean score	proficiency levels					
		below level 1	level 1	level 2	level 3	level 4	level 5
All	539	2.6%	7.2%	17.4%	26.7%	26.5%	19.6%
Female	557	1.4%	4.9%	14.6%	25.6%	29.0%	24.5%
Male	522	3.8%	9.0%	19.9%	27.9%	24.3%	15.0%

Chart 3. Proportion of 15 year olds performing at each level of the three domains of reading literacy, Scotland



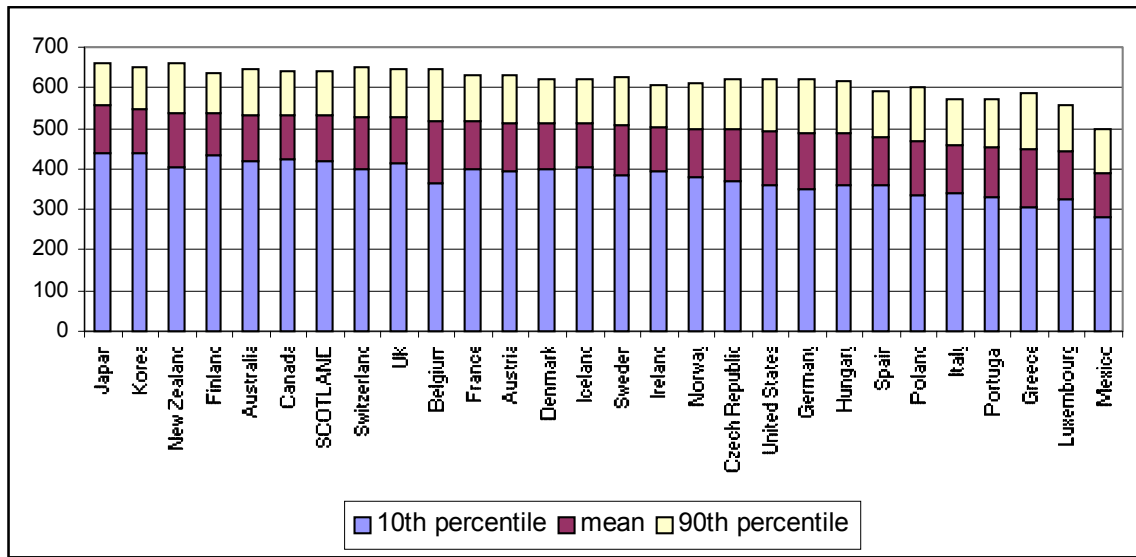
Performance in Mathematical Literacy

7. Fifteen year olds in Scotland ranked equal fifth in a ranking of mathematical literacy test scores of OECD countries, behind Japan, Korea, Finland and New Zealand. Male students outperformed females by a small margin. Only in 3 countries, Iceland, New Zealand and the Russian Federation, did females score higher than males. The largest differences were in Korea, Austria and Brazil.

Table 6. Variation in performance on the PISA mathematical literacy scale, by country

	Mean	Percentiles					
		5th	10th	25th	75th	90th	95th
	Mean score	Score	Score	Score	Score	Score	Score
OECD countries							
Australia	533	380	418	474	594	647	679
Austria	515	355	392	455	581	631	661
Belgium	520	322	367	453	597	646	672
Canada	533	390	423	477	592	640	668
Czech Republic	498	335	372	433	564	623	655
Denmark	514	366	401	458	575	621	649
Finland	536	400	433	484	592	637	664
France	517	364	399	457	581	629	656
Germany	490	311	349	423	563	619	649
Greece	447	260	303	375	524	586	617
Hungary	488	327	360	419	558	615	648
Iceland	514	372	407	459	572	622	649
Ireland	503	357	394	449	561	606	630
Italy	457	301	338	398	520	570	600
Japan	557	402	440	504	617	662	688
Korea	547	400	438	493	606	650	676
Luxembourg	446	281	328	390	509	559	588
Mexico	387	254	281	329	445	496	527
New Zealand	537	364	405	472	607	659	689
Norway	499	340	379	439	565	613	643
Poland	470	296	335	402	542	599	632
Portugal	454	297	332	392	520	570	596
SCOTLAND	533	383	419	477	595	643	669
Male	536	388	424	482	599	648	673
Female	532	381	419	476	591	639	665
Spain	476	323	358	416	540	592	621
Sweden	510	347	386	450	574	626	656
Switzerland	529	353	398	466	601	653	682
United Kingdom	529	374	412	470	592	646	676
United States	493	327	361	427	562	620	652
OECD total	498	318	358	429	572	628	658
Country mean	500	326	367	435	571	625	655
Non-OECD countries							
Brazil	334	179	212	266	399	464	499
Latvia	463	288	328	393	536	593	625
Liechtenstein	514	343	380	454	579	635	665
Russian Federation	478	305	343	407	552	613	648

Chart 4. Mean scores in mathematical literacy, and scores at 10th and 90th percentiles, by country



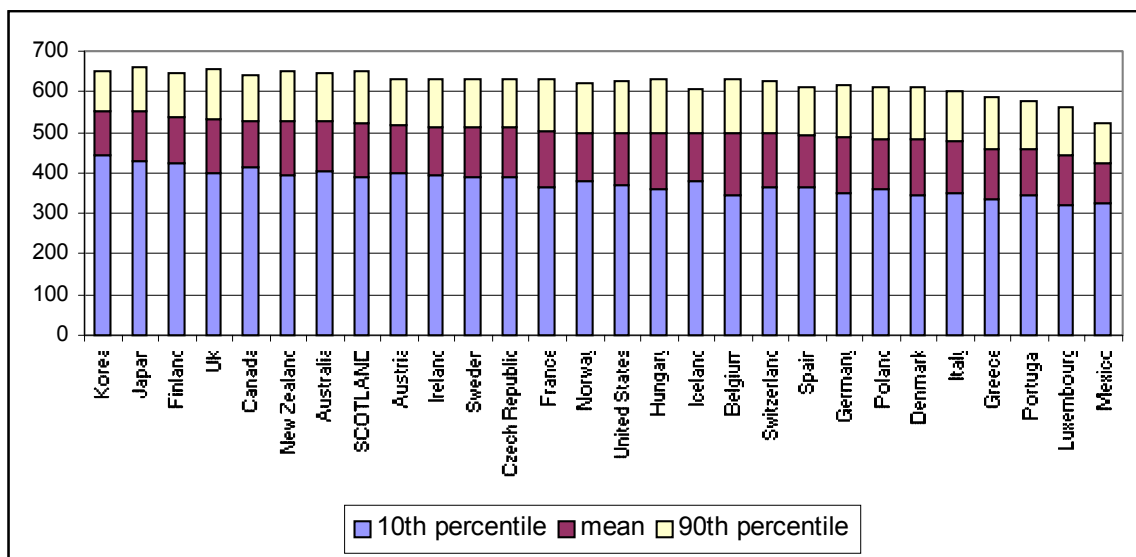
Performance in Scientific Literacy

8. Fifteen year olds in Scotland ranked well above the average in scientific literacy test scores of OECD countries, but behind the UK as a whole. The rankings were topped by Korea and Japan. Male students in Scotland outperformed females by a small margin, although there was a greater variation in the scores of males. In 12 countries, males outperformed females, and in 17 females achieved better results.

Table 7. Variation in performance on the PISA scientific literacy scale, by country

	Mean	Percentiles					
	Mean score	5th	10th	25th	75th	90th	95th
		Score	Score	Score	Score	Score	Score
OECD countries							
Australia	528	368	402	463	596	646	675
Austria	519	363	398	456	584	633	659
Belgium	496	292	346	424	577	630	656
Canada	529	380	412	469	592	641	670
Czech Republic	511	355	389	449	577	632	663
Denmark	481	310	347	410	554	613	645
Finland	538	391	425	481	598	645	674
France	500	329	363	429	575	631	663
Germany	487	314	350	417	560	618	649
Greece	461	300	334	393	530	585	616
Hungary	496	328	361	423	570	629	659
Iceland	496	351	381	436	558	607	635
Ireland	513	361	394	450	578	630	661
Italy	478	315	349	411	547	602	633
Japan	550	391	430	495	612	659	688
Korea	552	411	442	499	610	652	674
Luxembourg	443	278	320	382	510	563	593
Mexico	422	303	325	368	472	525	554
New Zealand	528	357	392	459	600	653	683
Norway	500	338	377	437	569	619	649
Poland	483	326	359	415	553	610	639
Portugal	459	317	343	397	521	575	604
SCOTLAND	522	353	388	452	594	649	682
Male	523	347	381	454	599	654	689
Female	522	365	396	453	591	644	675
Spain	491	333	367	425	558	613	643
Sweden	512	357	390	446	578	630	660
Switzerland	496	332	366	427	567	626	656
United Kingdom	532	366	401	466	602	656	687
United States	499	330	368	430	571	628	658
OECD total	502	332	368	431	576	631	662
Country mean	500	332	368	431	572	627	657
Non-OECD countries							
Brazil	375	230	262	315	432	492	531
Latvia	460	299	334	393	528	585	620
Liechtenstein	476	314	357	409	543	595	629
Russian Federation	460	298	333	392	529	591	625

Chart 5. Mean scores in scientific literacy, and scores at 10th and 90th percentiles, by country



Performance in All Subjects

9. Of the three main subjects and three reading domains tested in PISA 2000, the widest variation in scores in Scotland were achieved in the interpreting and the retrieving information aspects of reading, and in science. The spread of scores was much smaller in mathematics and in the reflecting and evaluating aspect of reading, particularly due to better performances at the lower end of the scales.

10. The spread of scores in the UK followed a similar pattern, although the top 10 per cent of students performed better in the UK than in Scotland in all areas except interpreting texts. The bottom 10 per cent of students performed worse in the UK in all subjects except science.

Table 8a. 10th, 25th, 50th, 75th and 90th percentiles on the PISA proficiency scales, Scotland

10th, 25th, 50th, 75th and 90th percentiles on the PISA proficiency scales					
Scotland	10%	25%	50%	75%	90%
Reading	394	460	531	596	647
Reading - Retrieving Information	387	459	532	598	653
Reading - Interpreting	386	455	528	597	654
Reading - Reflecting and Evaluating	411	471	539	603	656
Mathematics	419	477	538	595	643
Science	388	452	526	594	649

Table 8b. 10th, 25th, 50th, 75th and 90th percentiles on the PISA proficiency scales, UK

10th, 25th, 50th, 75th and 90th percentiles on the PISA proficiency scales					
UK	10%	25%	50%	75%	90%
Reading	391	458	527	595	651
Reading - Retrieving Information	384	455	528	597	656
Reading - Interpreting	380	445	518	586	644
Reading - Reflecting and Evaluating	408	473	543	608	664
Mathematics	412	470	532	592	646
Science	401	466	535	602	656

Gender Difference in Performance

11. Almost two thirds of students scoring in the bottom 10 per cent of the PISA reading literacy scale in Scotland were male. Only one third of those scoring in the top 10 per cent were male. This pattern is repeated in each of the reading literacy domains. In the UK as a whole, the gender differences are not quite as extreme, with over 40 per cent of those scoring in the top 10 per cent being male.

12. A greater proportion of males than females were represented amongst the top 10 per cent of performers in mathematics in Scotland. The same was true in science, although a greater proportion of males were also represented among the bottom 10 per cent.

13. In the UK as a whole, males were over-represented in the top and bottom 10 per cent in all subjects. In Scotland this was only true in mathematics and, most significantly, in science.

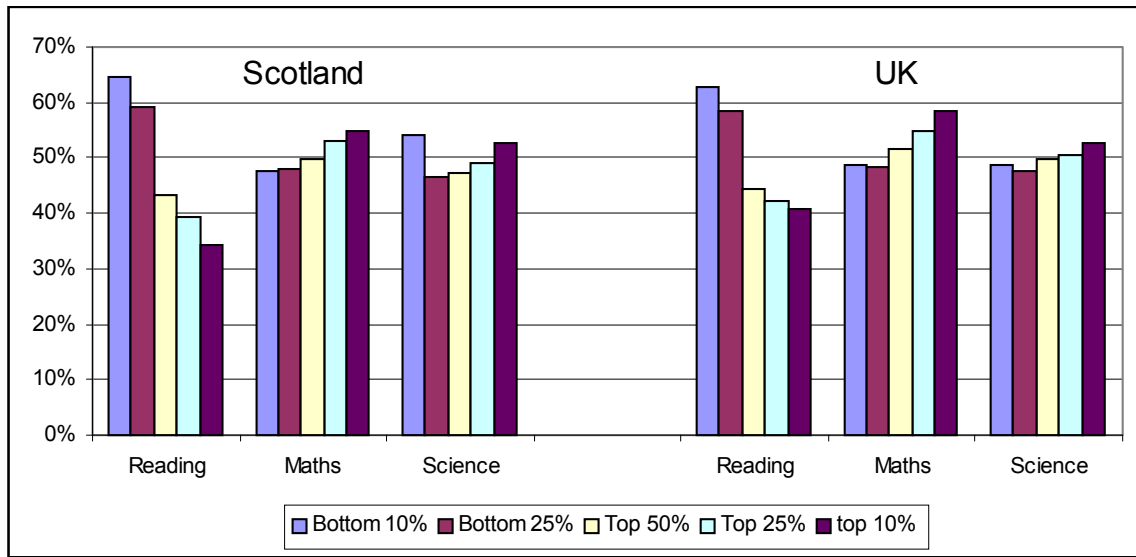
Table 9a. Performance of male students on the PISA proficiency scales, Scotland

Percentage of male students among the bottom 10%, bottom 25%, top 50%, top 25% and top 10% of students on the PISA proficiency scales					
Scotland	Bottom 10%	Bottom 25%	Top 50%	Top 25%	Top 10%
Reading	65%	59%	43%	39%	34%
Reading - Retrieving Information	64%	57%	44%	41%	37%
Reading - Interpreting	62%	58%	44%	41%	38%
Reading - Reflecting and Evaluating	67%	56%	42%	38%	32%
Mathematics	48%	48%	50%	53%	55%
Science	54%	46%	47%	49%	53%

Table 9b. Performance of male students on the PISA proficiency scales, UK

Percentage of male students among the bottom 10%, bottom 25%, top 50%, top 25% and top 10% of students on the PISA proficiency scales					
UK	Bottom 10%	Bottom 25%	Top 50%	Top 25%	Top 10%
Reading	63%	59%	44%	42%	41%
Reading - Retrieving Information	60%	56%	46%	45%	44%
Reading - Interpreting	60%	57%	45%	43%	43%
Reading - Reflecting and Evaluating	66%	61%	43%	39%	36%
Mathematics	49%	48%	52%	55%	59%
Science	49%	48%	50%	50%	53%

Chart 6. Performance of male students on the PISA proficiency scales for reading, mathematics and science, Scotland and UK



SECTION 3 – FAMILY AND HOME LIFE

Family Background

1. The impact of parents' work on the reading literacy of 15 year-olds is not clear. In Scotland, reading test scores were highest for those children whose parents both work, but one of them part time.

Table 10. Percentage of students and performance on the PISA reading literacy scale, by working status of parents, Scotland, UK and OECD

Proportion of 15 year olds and mean reading score of 15 year olds from families where:	Percentage			Mean reading score		
	Scotland	UK	OECD	Scotland	UK	OECD
both parents work full time	43%	41%	40%	533	534	513
both parents work, at least one part time	27%	29%	22%	542	539	515
only one parent works	24%	23%	33%	526	518	493
neither parent works	6%	6%	4%	483	478	462

2. In Scotland, only children tended to outperform their peers in the PISA reading literacy tests, while middle children performed worse than eldest or youngest children.

Table 11. Percentage of students and performance on the PISA reading literacy scale, by birth order, Scotland, UK and OECD

Proportion of 15 year olds and mean reading score of 15 year olds who are:	Percentage			Mean reading score		
	Scotland	UK	OECD	Scotland	UK	OECD
an only child	8%	6%	8%	538	545	512
a youngest child	37%	34%	35%	524	526	498
a middle child	20%	25%	24%	518	506	478
an oldest child	35%	34%	33%	531	534	515

Country of Birth

3. In all countries bar one, students whose parents were born outside the testing country perform worse than students whose parents were born in the country (native students). Students who themselves were born outside of the testing country (non-native students) perform worse still. The difference between native and first generation students is more marked in Scotland than in the rest of the UK, but less than in most OECD countries. The difference between first generation and non-native students is less in Scotland than in most OECD countries, including the rest of the UK, although in 4 OECD countries, non-native students outperform first generation students.

Table 12. Percentage of students and performance on the PISA reading literacy scale, by students' and parents' country of birth, by country

	Native students <i>(students who were born in the country of assessment with at least one of their parents born in the same country)</i>		First-generation students <i>(students who were born in the country of assessment but whose parents were foreign-born)</i>		Non-native students <i>(students who were foreign-born and whose parents were also foreign-born)</i>	
	Percentage of students	Performance on the PISA reading literacy scale	Percentage of students	Performance on the PISA reading literacy scale	Percentage of students	Performance on the PISA reading literacy scale
		Mean score		Mean score		Mean score
OECD countries						
Australia	77.4	532	10.7	528	11.9	513
Austria	90.4	515	3.7	453	5.9	422
Belgium	88.0	522	8.6	411	3.4	431
Canada	79.5	538	10.8	539	9.8	511
Czech Republic	98.9	501	0.6	*	0.5	*
Denmark	93.8	504	2.4	409	3.8	433
Finland	98.7	548	0.2	*	1.0	468
France	88.0	512	9.8	471	2.2	434
Germany	84.8	507	5.1	432	10.1	419
Greece	95.2	478	0.5	*	4.3	403
Hungary	98.3	482	0.1	*	1.6	486
Iceland	99.2	509	0.2	*	0.6	*
Ireland	97.7	528	0.9	519	1.4	573
Italy	99.1	489	0.2	*	0.8	445
Japan	99.9	525	0.0	*	0.1	*
Luxembourg	65.8	474	17.8	399	16.4	370
Mexico	96.4	427	1.1	378	2.5	329
New Zealand	80.4	538	6.4	507	13.2	507
Norway	95.4	510	1.5	464	3.1	449
Poland	99.7	482	0.0	*	0.2	*
Portugal	96.9	472	1.8	463	1.4	450
SCOTLAND	97.8	526	1.5	499	0.7	487
Spain	98.0	494	0.6	450	1.4	460
Sweden	89.5	523	4.7	485	5.9	450
Switzerland	79.3	514	9.3	460	11.4	402
United Kingdom	90.4	528	7.0	510	2.6	456
United States	86.4	511	7.4	478	6.1	466
OECD total	91.3	503	4.6	479	4.1	452
OECD average	91.0	506	4.3	467	4.7	446
Non-OECD countries						
Brazil	99.6	398	0.3	*	0.1	*
Latvia	77.9	462	1.5	423	20.6	454
Liechtenstein	79.4	500	10.2	446	10.4	392
Russian Federation	95.4	463	1.8	452	2.8	458

* based on too few responses to be valid

Language spoken at home

4. It is not surprising to find that the language spoken at home has a very significant effect on the reading literacy scores of 15 year olds. The international data show that in all countries where comparisons could be made, students who spoke the language of the test at home most of the time had higher scores than those who spoke a different language most of the time. However, the final column in Table 13 suggests that language spoken at home had a lower impact on scores in Scotland than it did in all other OECD countries except Australia and Canada.

Table 13. Percentage of students and performance on the PISA reading literacy scale, by language spoken at home, by country

	Language spoken at home most of the time IS DIFFERENT from the language of assessment, from other official languages or from other national dialects		Language spoken at home most of the time IS THE SAME as the language of assessment, other official languages or another national dialects		Increased likelihood of students who do not speak the language of assessment at home scoring in the bottom quarter of the national reading literacy performance distribution
	Percentage of students	Performance on the PISA reading literacy scale	Percentage of students	Performance on the PISA reading literacy scale	
		Mean score		Mean score	Ratio
OECD countries					
Australia	17.0	504	83.0	534	1.6
Austria	6.7	434	93.3	515	2.3
Belgium	4.9	403	95.2	518	2.8
Canada	9.4	506	90.6	540	1.6
Czech Republic	0.8	*	99.2	494	*
Denmark	6.7	425	93.3	503	2.5
Finland	1.3	470	98.7	548	*
France	4.0	442	96.0	510	2.3
Germany	7.9	386	92.1	500	2.9
Greece	2.8	407	97.2	477	2.3
Iceland	1.9	463	98.1	509	*
Ireland	0.9	*	99.1	527	*
Italy	0.7	*	99.3	491	*
Japan	0.3	*	99.7	525	*
Luxembourg	18.3	367	81.7	460	2.8
Mexico	0.2	*	99.8	422	*
New Zealand	9.6	469	90.4	541	2.1
Norway	5.3	459	94.7	510	1.8
Poland	0.5	*	99.5	482	*
Portugal	1.5	416	98.5	471	*
SCOTLAND	1.3	482	98.7	528	1.7
Spain	1.2	456	98.8	495	*
Sweden	6.7	456	93.3	523	2.1
Switzerland	13.6	414	86.4	509	2.8
United Kingdom	4.1	470	95.9	528	1.9
United States	10.8	438	89.2	514	2.1
OECD total	5.5	443	94.5	503	2.0
OECD average	5.5	440	94.5	506	2.1
Non-OECD countries					
Brazil	0.8	*	99.2	397	*
Latvia	0.0	*	100.0	460	*
Liechtenstein	20.7	441	79.3	494	*
Russian Federation	7.3	432	92.7	465	1.5

* based on too few responses to be valid

Cultural Activities

5. Students who attend cultural events, including cinema or pop concerts, tend to outperform their peers, although this does not hold for those who attend sporting events.

6. Approximately 60 per cent of 15 year olds in Scotland go to the cinema at least 4 times a year. A similar proportion never go to the theatre, and more than half never attend an art gallery or museum. Fifteen year olds in Scotland are less likely to attend museums or art galleries or the theatre than their counterparts in the rest of the UK.

Table 14a. Percentage of students and performance on the PISA reading literacy scale by responses to questions on participation in cultural activities, Scotland

Proportion of 15 year olds who, in the 12 months prior to the survey, had:	Scotland			Scotland		
	Never or Hardly Ever	1-4 times a year	4+ times a year	Never or Hardly Ever	1-4 times a year	4+ times a year
gone to the cinema	5%	35%	61%	453	516	539
visited a museum or art gallery	53%	42%	4%	509	546	568
attended a pop concert	46%	48%	6%	517	537	534
attended an opera, ballet or classical symphony concert	86%	12%	2%	522	566	550
watched live theatre	59%	37%	4%	511	552	555
attended sporting events	18%	39%	43%	540	533	517

Table 14b. Percentage of students and performance on the PISA reading literacy scale by responses to questions on participation in cultural activities, UK

Mean reading scores of 15 year olds who, in the 12 months prior to the survey, had:	UK			UK		
	Never or Hardly Ever	1-4 times a year	4+ times a year	Never or Hardly Ever	1-4 times a year	4+ times a year
gone to the cinema	3%	36%	61%	457	508	539
visited a museum or art gallery	45%	50%	5%	500	545	575
attended a pop concert	63%	33%	4%	520	541	527
attended an opera, ballet or classical symphony concert	85%	14%	1%	519	579	581
watched live theatre	53%	43%	4%	506	549	579
attended sporting events	22%	43%	35%	534	524	523

Table 14c. Percentage of students and performance on the PISA reading literacy scale by responses to questions on participation in cultural activities, OECD

Mean reading scores of 15 year olds who, in the 12 months prior to the survey, had:	OECD			OECD		
	Never or Hardly Ever	1-4 times a year	4+ times a year	Never or Hardly Ever	1-4 times a year	4+ times a year
gone to the cinema	14%	39%	47%	473	494	515
visited a museum or art gallery	45%	50%	5%	483	516	535
attended a pop concert	57%	38%	6%	499	508	491
attended an opera, ballet or classical symphony concert	82%	17%	2%	495	534	530
watched live theatre	58%	38%	4%	490	518	529
attended sporting events	25%	38%	37%	506	498	502

Activities with Parents

7. One area where variation in reading literacy score is most marked in Scotland is in time spent with parents. In particular it is very noticeable that the 20 per cent of 15 year olds in Scotland who regularly discuss political or social issues with their parents score considerably higher than other 15 year olds. The same is true, though to a slightly lesser extent, for children who participate in other activities with their parents, such as discussing books, films or TV, or eating dinner at a table. A higher proportion of 15 year olds in the rest of the UK regularly participated in such activities with their parents.

Table 15a. Percentage of students and Performance on the PISA reading literacy scale by responses to questions on participation in activities with their parents, Scotland

Proportion of 15 year olds who, in the 12 months prior to the survey, had, with their parents:	Scotland			Scotland		
	Never or Hardly Ever	1-4 times a year	4+ times a year	Never or Hardly Ever	1-4 times a year	4+ times a year
Discussed political or social issues	40%	40%	20%	500	530	580
Discussed books, films or TV	12%	32%	56%	465	514	549
Listened to classical music	86%	9%	5%	523	554	560
Discussed how well they are doing at school?	2%	16%	83%	408	509	534
Eaten dinner around a table	10%	14%	76%	478	517	536
Spent time just talking	5%	14%	81%	458	500	536

Table 15b. Percentage of students and Performance on the PISA reading literacy scale by responses to questions on participation in activities with their parents, UK

Mean reading score of 15 year olds who, in the 12 months prior to the survey, had, with their parents:	UK			UK		
	Never or Hardly Ever	1-4 times a year	4+ times a year	Never or Hardly Ever	1-4 times a year	4+ times a year
Discussed political or social issues	36%	41%	23%	503	526	566
Discussed books, films or TV	8%	27%	65%	474	506	542
Listened to classical music	81%	12%	7%	523	555	530
Discussed how well they are doing at school?	2%	12%	86%	469	516	529
Eaten dinner around a table	8%	11%	82%	492	508	532
Spent time just talking	4%	12%	84%	481	502	531

Table 15c. Percentage of students and Performance on the PISA reading literacy scale by responses to questions on participation in activities with their parents, OECD

Mean reading score of 15 year olds who, in the 12 months prior to the survey, had, with their parents:	OECD			OECD		
	Never or Hardly Ever	1-4 times a year	4+ times a year	Never or Hardly Ever	1-4 times a year	4+ times a year
Discussed political or social issues	30%	39%	31%	467	504	533
Discussed books, films or TV	13%	30%	56%	463	488	519
Listened to classical music	72%	18%	10%	503	509	485
Discussed how well they are doing at school?	4%	17%	78%	469	493	505
Eaten dinner around a table	5%	8%	87%	462	481	506
Spent time just talking	6%	14%	80%	459	477	509

SECTION 4 – SCHOOL LIFE

English Lessons – Disciplinary Climate and Teacher Support

1. Almost a quarter of 15 year olds surveyed reported that in most or all of their English lessons, the teacher has to wait a long time for quiet. This proportion was higher, at close to one third, in the UK as a whole. There were no other marked differences between Scotland and the UK in disciplinary climate and teacher support. The perceived interest and help from teachers is higher in Scotland and the UK than in the OECD as a whole.

Table 16. Percentage of students by responses to questions on discipline and support in English classes, Scotland, UK & OECD

Proportion of 15 year olds who reported that in English lessons:	Scotland			UK			OECD		
	Never	Sometime	Most or every lesson	Never	Sometime	Most or every lesson	Never	Sometime	Most or every lesson
the teacher has to wait a long time for quiet	15%	61%	24%	11%	58%	32%	17%	54%	29%
students cannot work well	25%	59%	16%	22%	61%	17%	25%	56%	19%
students don't listen to what the teacher says	20%	61%	19%	15%	65%	20%	17%	59%	24%
the teacher tells student they can do better	3%	45%	53%	4%	46%	50%	11%	38%	51%
the teacher does not like careless work	5%	37%	58%	5%	39%	55%	16%	35%	49%
the teacher shows an interest in every student's learning	4%	19%	77%	5%	19%	75%	12%	30%	59%
the teacher gives students an opportunity to express opinions	6%	23%	72%	4%	19%	77%	8%	24%	68%
the teacher continues teaching until the students understand	4%	20%	76%	5%	19%	76%	10%	30%	61%
the teacher does a lot to help students	4%	21%	75%	4%	21%	75%	9%	31%	60%
the teacher checks students homework	9%	24%	67%	6%	24%	69%	10%	31%	59%
students have to learn a lot	5%	34%	62%	4%	32%	64%	6%	34%	60%

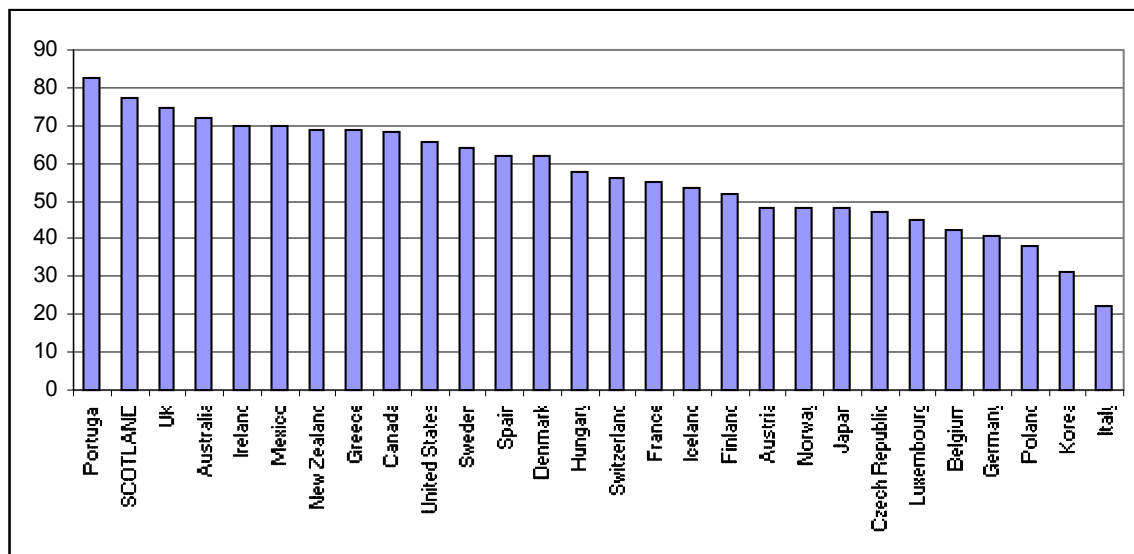
Teacher Support

2. Comparison with the international data reveal that only in the UK as a whole was the level of support provided by teachers considered to be as high as that in Scotland. The level of perceived support had a positive correlation with reading test scores in most countries, with the increase in reading literacy score per unit of the teacher support index in Scotland being slightly above the OECD average.

Table 17. PISA indices of teacher support and change in the PISA reading literacy score, by country

	Teacher support							PISA index of teacher support	Change in the PISA combined reading literacy score per unit of the PISA index of teacher support
	Percentage of students who report that in most or every test language lesson, the teacher ...							Mean index	
	shows an interest in every student's learning	gives students an opportunity to express opinions	helps students with their work	continues teaching until the students understand	does a lot to help students	helps students with their learning	checks students' homework		
OECD countries									
Australia	72	77	80	72	70	77	49	0.41	7.37
Austria	48	67	54	56	52	32	64	-0.25	-0.62
Belgium	42	56	44	58	54	37	60	-0.28	-4.83
Canada	69	73	76	68	67	75	49	0.31	4.42
Czech Republic	47	57	32	41	51	24	47	-0.50	0.77
Denmark	62	76	74	67	66	67	49	0.17	11.65
Finland	52	72	72	59	57	66	42	0.02	5.48
France	55	61	50	57	48	42	44	-0.20	-2.53
Germany	41	62	52	53	51	34	61	-0.34	-12.55
Greece	69	77	41	62	65	69	53	0.14	2.20
Hungary	58	71	73	58	67	51	52	0.05	-2.43
Iceland	53	51	79	72	69	75	61	0.13	8.87
Ireland	70	66	62	64	64	61	63	0.13	-0.13
Italy	22	72	50	63	61	41	50	-0.28	-11.46
Japan	48	58	61	48	48	51	35	-0.17	6.23
Korea	31	43	17	41	49	41	54	-0.67	5.56
Luxembourg	45	57	46	56	49	32	51	-0.34	-5.13
Mexico	70	76	36	62	53	61	76	0.07	-2.60
New Zealand	69	73	79	67	69	76	56	0.34	5.26
Norway	48	62	69	59	60	70	41	-0.03	14.95
Poland	38	60	41	43	44	35	46	-0.39	9.20
Portugal	83	77	71	68	70	79	51	0.47	-1.33
SCOTLAND	77	72	83	76	75	79	67	0.48	4.46
Spain	62	63	59	66	57	63	68	0.09	2.53
Sweden	64	71	74	69	70	76	51	0.21	6.20
Switzerland	56	68	66	66	63	47	56	0.01	-13.40
United Kingdom	75	76	80	75	75	79	69	0.50	6.66
United States	66	66	70	63	63	69	65	0.34	6.87
OECD total	56	65	58	59	58	57	57	0.00	2.82
Country mean	56	66	59	60	60	56	54	0.02	2.96
Non-OECD countries									
Brazil	73	70	62	69	74	75	49	0.38	4.60
Latvia	40	60	56	54	53	53	59	-0.20	15.56
Liechtenstein	51	69	72	70	65	42	65	0.09	-14.19
Russian Federation	55	69	65	61	65	70	64	0.16	6.40

Chart 7. Percentage of students who report that in most or every test language lesson, the teacher shows an interest in every student's learning



Disciplinary Climate

3. Comparison with the international data also shows that 15 year olds in Scotland were better disciplined at settling down to work than in most OECD countries. However, in all countries, there was a significant minority who felt that there was a problem with students making noise and not working well. PISA created an index of disciplinary climate based on responses to each of the questions listed in table 18. This showed that disciplinary climate was more positive in Scotland than on average and more positive than in the UK as a whole. However, the analysis also revealed that indiscipline had a very powerful impact on reading scores in Scotland.

Table 18. PISA index of disciplinary climate and change in the PISA reading literacy score, by country

	Disciplinary climate						PISA index of disciplinary climate	Change in the PISA combined reading literacy score per unit of the PISA index of disciplinary climate
	Percentage of students who report that in most or every test language lesson ...						Mean index	
	the teacher has to wait a long time for students to quieten down	students cannot work well	students don't listen to what the teacher says	students don't start working for a long time after the lesson begins	there is noise and disorder	at the start of class, more than five minutes are spent doing nothing		
OECD countries								
Australia	31	18	21	26	32	42	-0.09	16.69
Austria	32	20	21	29	19	38	0.19	4.98
Belgium	35	14	23	30	36	51	-0.12	3.15
Canada	35	16	23	29	33	46	-0.14	13.28
Czech Republic	32	17	26	21	26	27	0.14	12.37
Denmark	27	17	19	22	33	55	-0.20	9.71
Finland	39	15	29	21	42	44	-0.16	9.56
France	35	15	27	36	42	38	-0.05	1.53
Germany	36	23	24	27	22	34	0.10	10.13
Greece	43	39	29	34	46	58	-0.42	2.96
Hungary	34	25	22	16	23	16	0.23	16.05
Iceland	34	16	20	20	28	50	-0.08	8.90
Ireland	29	16	25	25	26	41	0.09	15.41
Italy	48	22	35	29	46	49	-0.24	14.11
Japan	9	20	16	17	17	25	0.49	17.15
Korea	17	21	32	23	29	32	0.20	6.88
Luxembourg	31	21	24	26	27	36	0.12	2.41
Mexico	28	17	19	19	24	23	0.17	2.03
New Zealand	33	22	23	26	32	46	-0.15	12.47
Norway	42	23	27	33	39	56	-0.36	7.79
Poland	26	13	19	19	18	27	0.37	20.88
Portugal	25	19	20	24	24	42	-0.05	10.57
SCOTLAND	24	16	19	21	25	42	0.12	19.03
Spain	41	18	24	35	34	48	-0.17	12.18
Sweden	43	23	29	31	38	30	-0.19	12.44
Switzerland	27	18	18	23	18	27	0.30	9.81
United Kingdom	31	17	20	23	27	41	0.02	20.10
United States	26	17	24	23	28	37	0.03	13.17
OECD total	28	18	23	24	28	35	0.09	11.99
Country mean	32	19	24	25	30	39	0.00	9.45
Non-OECD countries								
Brazil	36	24	28	38	40	50	-0.34	-5.95
Latvia	19	17	19	16	17	21	0.38	9.04
Liechtenstein	25	21	15	15	10	21	0.35	-2.59
Russian Federation	19	16	16	13	12	27	0.45	10.06

Chart 8. Percentage of students who report that in most or every test language lesson the teacher has to wait a long time for students to quieten down

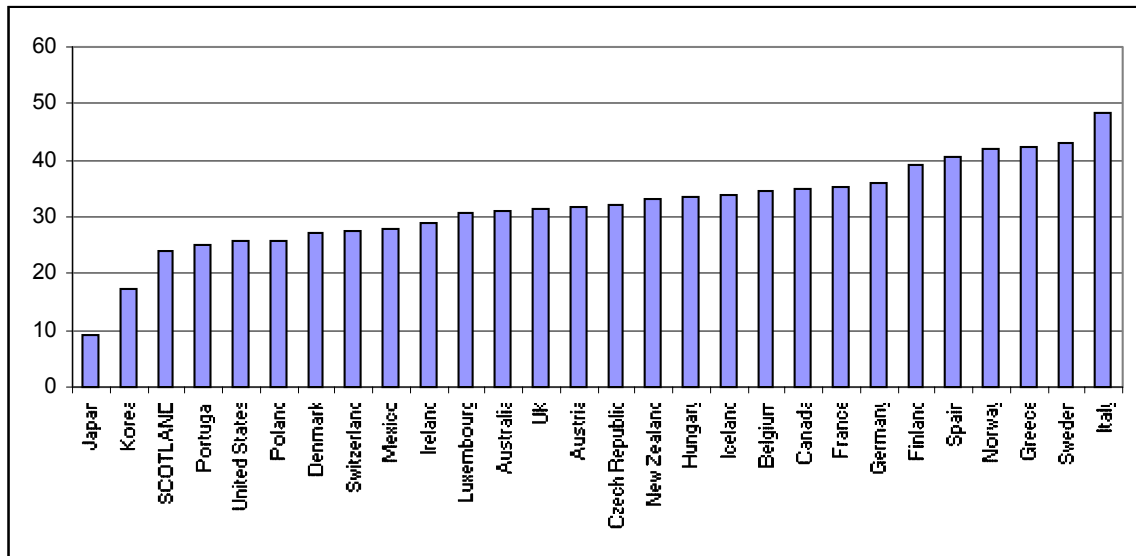
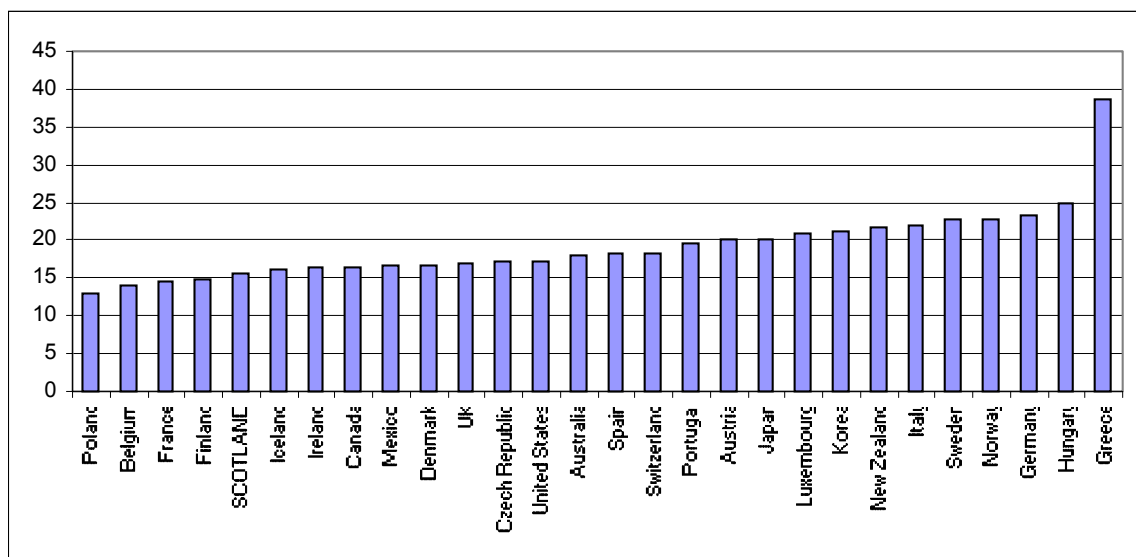


Chart 9. Percentage of students who report that in most or every test language lesson students cannot work well



Attendance and Absence

4. Thirty seven per cent of 15 year olds in school reported being absent from school at least once during a two week period. The same proportion also reported arriving late for school at least once over the same period. Twelve per cent reported skipping at least one class during the two weeks. Levels of attendance and absence were similar to the UK and OECD. Not surprisingly, those with higher levels of attendance tended to achieve higher reading literacy scores.

Table 19a. Percentage and Performance on the PISA reading literacy scale of students who reported being absent from school, Scotland

Proportion of 15 year olds who, in the two weeks prior to the survey, had:	Scotland				Scotland			
	Never	1 or 2 times	3 or 4 times	5 or more times	Never	1 or 2 times	3 or 4 times	5 or more times
missed school totally	63%	30%	4%	3%	538	514	503	478
skipped classes	88%	8%	2%	1%	533	492	481	*
arrived late for school	63%	28%	7%	3%	543	508	485	494

Table 19b. Percentage and Performance on the PISA reading literacy scale of students who reported being absent from school, UK

Mean reading score of 15 year olds who, in the two weeks prior to the survey, had:	UK				UK			
	Never	1 or 2 times	3 or 4 times	5 or more times	Never	1 or 2 times	3 or 4 times	5 or more times
missed school totally	65%	28%	4%	3%	537	508	485	466
skipped classes	90%	8%	1%	1%	530	487	484	436
arrived late for school	61%	28%	7%	4%	538	510	500	484

Table 19c. Percentage and Performance on the PISA reading literacy scale of students who reported being absent from school, OECD

Mean reading score of 15 year olds who, in the two weeks prior to the survey, had:	OECD				OECD			
	Never	1 or 2 times	3 or 4 times	5 or more times	Never	1 or 2 times	3 or 4 times	5 or more times
missed school totally	66%	27%	4%	3%	512	489	461	431
skipped classes	83%	13%	2%	2%	508	477	468	430
arrived late for school	67%	24%	5%	4%	515	482	472	444

Relationships with Teachers

5. Over 70 per cent of 15 year olds in both Scotland and the UK as a whole felt that they got on well with most teachers. Almost 90 per cent also felt that if they needed extra help from teachers, they would receive it. The perceived relationship with teachers was better in Scotland than the OECD average. Not surprisingly, those students who felt they had good relationships with staff tended to score considerably higher on the reading literacy tests.

Table 20a. Percentage and performance on the PISA reading literacy scale of students who reported good relationships with teachers, Scotland

Proportion of 15 year olds who agree or disagree with the following statements:	Scotland		Scotland	
	Disagree or disagree strongly	Agree or agree strongly	Disagree or disagree strongly	Agree or agree strongly
Students get along well with most teachers	28%	72%	496	540
Most teachers are interested in students' well-being	14%	86%	488	534
Most teachers really listen to what I have to say	31%	69%	506	538
If I need extra help I will receive it from my teachers	11%	89%	486	532
Most of my teachers treat me fairly	16%	84%	485	536

Table 20b. Percentage and performance on the PISA reading literacy scale of students who reported good relationships with teachers, UK

Mean reading score of 15 year olds who agree or disagree with the following statements:	UK		UK	
	Disagree or disagree strongly	Agree or agree strongly	Disagree or disagree strongly	Agree or agree strongly
Students get along well with most teachers	27%	73%	500	535
Most teachers are interested in students' well-being	15%	85%	490	532
Most teachers really listen to what I have to say	32%	68%	512	532
If I need extra help I will receive it from my teachers	13%	87%	501	530
Most of my teachers treat me fairly	19%	81%	496	533

Table 20c. Percentage and performance on the PISA reading literacy scale of students who reported good relationships with teachers, OECD

Mean reading score of 15 year olds who agree or disagree with the following statements:	OECD		OECD	
	Disagree or disagree strongly	Agree or agree strongly	Disagree or disagree strongly	Agree or agree strongly
Students get along well with most teachers	34%	66%	488	508
Most teachers are interested in students' well-being	31%	69%	495	505
Most teachers really listen to what I have to say	35%	65%	498	503
If I need extra help I will receive it from my teachers	25%	75%	489	506
Most of my teachers treat me fairly	26%	74%	476	511

Belonging at School

6. Eighty five per cent of 15 year olds in Scotland felt like they belonged at school. However, 27 per cent did not want to go to school, and 56 per cent often felt bored there. Figures for the rest of the UK were almost identical, with both similar to the OECD average. Students who felt lonely or out of place at school or students who felt bored tended to score worse on the reading literacy tests.

Table 21a. Percentage and performance on the PISA reading literacy scale of students by responses to questions on engagement with school, Scotland

Proportion of 15 year olds who agree or disagree with the following statements:	Scotland		Scotland	
	Disagree or disagree strongly	Agree or agree strongly	Disagree or disagree strongly	Agree or agree strongly
I feel like an outsider	93%	7%	530	504
I make friends easily	8%	92%	530	527
I feel like I belong	15%	85%	520	529
I feel awkward and out of place	91%	9%	531	493
Other students seem to like me	5%	95%	526	528
I feel lonely	95%	5%	529	515
I do not want to go	73%	27%	532	517
I often feel bored	44%	56%	538	520

Table 21b. Percentage and performance on the PISA reading literacy scale of students by responses to questions on engagement with school, UK

Mean reading scores of 15 year olds who agree or disagree with the following statements:	UK		UK	
	Disagree or disagree strongly	Agree or agree strongly	Disagree or disagree strongly	Agree or agree strongly
I feel like an outsider	93%	7%	529	493
I make friends easily	8%	92%	527	526
I feel like I belong	16%	84%	508	530
I feel awkward and out of place	91%	9%	531	481
Other students seem to like me	6%	94%	500	528
I feel lonely	94%	6%	526	522
I do not want to go	72%	28%	532	510
I often feel bored	45%	55%	532	521

Table 21c. Percentage and performance on the PISA reading literacy scale of students by responses to questions on engagement with school, OECD

Mean reading scores of 15 year olds who agree or disagree with the following statements:	OECD		OECD	
	Disagree or disagree strongly	Agree or agree strongly	Disagree or disagree strongly	Agree or agree strongly
I feel like an outsider	91%	9%	504	476
I make friends easily	14%	86%	495	502
I feel like I belong	22%	78%	488	505
I feel awkward and out of place	85%	15%	506	475
Other students seem to like me	19%	81%	480	507
I feel lonely	89%	11%	504	477
I do not want to go	69%	31%	503	498
I often feel bored	50%	50%	499	504

7. Fifteen year olds in Scotland generally engage well with school, compared to most other countries. Fewer students felt lonely at school in Scotland than in any other country, and the vast majority felt that they belonged. However, the number of students stating that they did not wish to go to school was only just below the OECD average, and the number who stated that they often felt bored exceeded the average.

Table 22. Percentage of students by responses to questions on engagement with school, by country

	Percentage of students who agree or strongly agree with the statement that "My school is a place where...							
	I feel like an outsider (or left out of things)"	I make friends easily"	I feel like I belong"	I feel awkward and out of place"	other students seem to like me"	I feel lonely"	I do not want to go"	I often feel bored"
OECD countries								
Australia	9	89	85	11	92	8	34	60
Austria	7	86	85	18	72	10	29	49
Belgium	10	86	53	19	87	7	42	46
Canada	9	89	81	12	93	9	37	58
Czech Republic	11	86	73	9	84	9	29	47
Denmark	6	85	84	10	75	10	19	41
Finland	6	84	86	11	84	8	26	60
France	8	87	44	16	86	7	37	32
Germany	6	81	82	15	67	8	25	49
Greece	10	88	83	13	85	10	22	66
Hungary	10	87	89	9	85	9	38	29
Iceland	10	81	85	11	86	10	23	30
Ireland	7	89	83	9	93	8	34	67
Italy	7	90	73	9	88	16	38	54
Japan	6	70	76	22	62	9	25	32
Korea	15	83	68	15	42	10	30	46
Luxembourg	9	84	72	19	68	11	30	50
Mexico	10	84	88	11	76	12	9	28
New Zealand	9	90	83	12	91	9	34	60
Norway	6	85	79	10	86	8	23	58
Poland	10	78	63	14	53	12	28	38
Portugal	8	91	83	19	90	8	13	24
SCOTLAND	7	92	86	8	95	5	26	56
Spain	5	90	52	12	89	7	30	66
Sweden	6	87	78	7	88	9	20	58
Switzerland	7	85	76	14	74	8	28	38
United Kingdom	7	91	83	9	93	6	28	54
United States	11	81	78	14	83	12	35	61
OECD total	9	82	75	14	77	10	29	48
Country mean	8	85	77	13	80	9	28	48
Non-OECD countries								
Brazil	5	89	86	10	88	8	20	30
Latvia	9	79	86	15	63	14	18	31
Liechtenstein	9	83	83	17	69	9	31	47
Russian Federation	6	82	86	13	50	10	17	27

Chart 10. Percentage of students who agree with the statement that they feel lonely at school

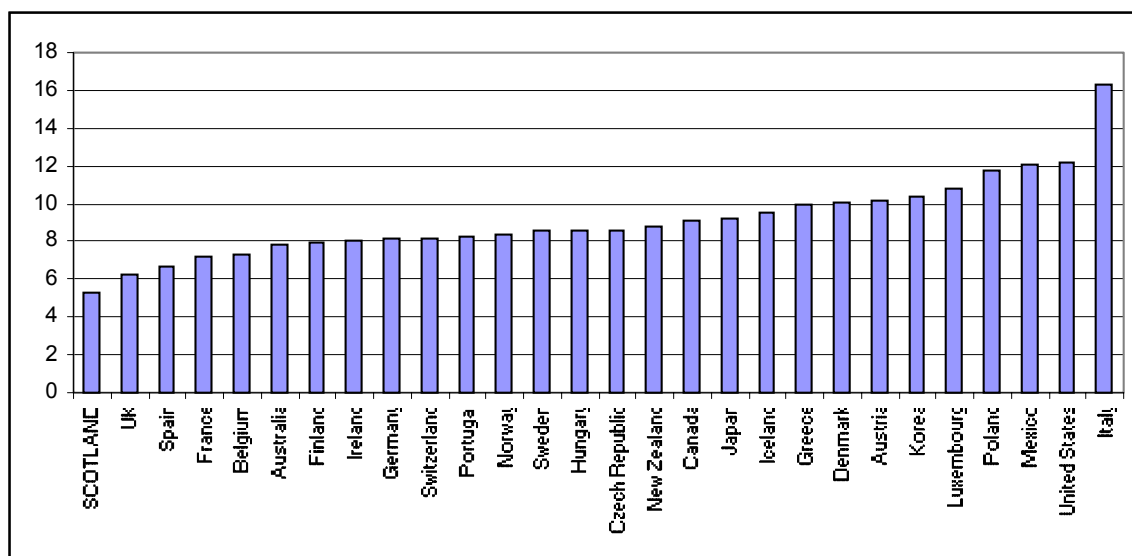
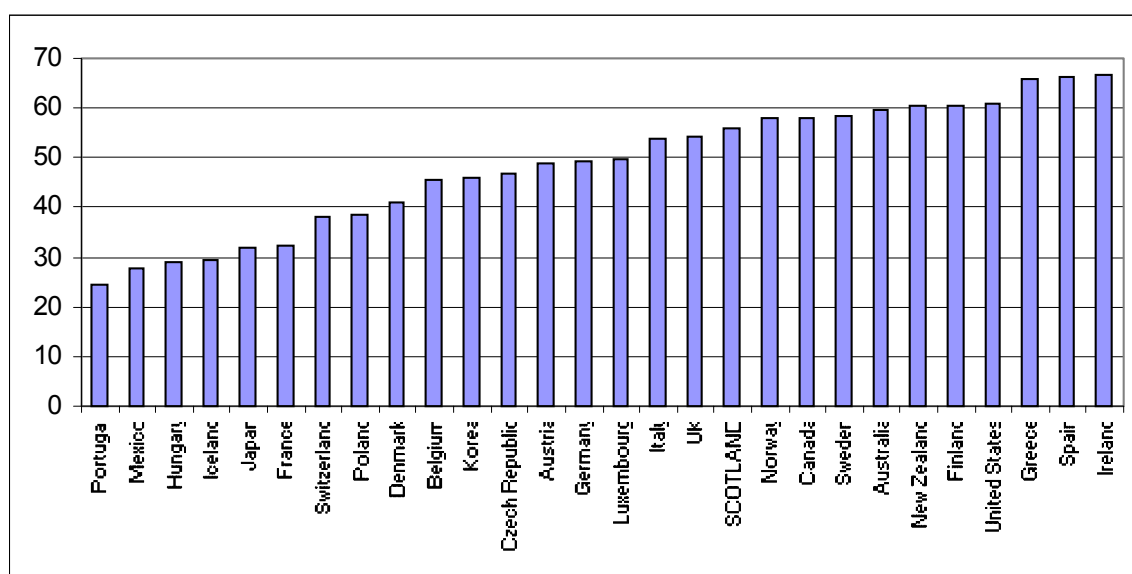


Chart 11. Percentage of students who agree with the statement that they often feel bored at school



Study Skills

8. In general, those students who apply some sort of method to their studying do better than those who do not. This is particularly noticeable when students take the time to work out what they need to learn and what are the most important aspects to be studied, as well as concentrating on concepts they have not fully understood. Students who concentrate on memorising material so that they can recite it tend to perform worse than those who use other methods of studying.

Table 23a. Percentage of students by responses to questions on study techniques, Scotland

Proportion of 15 year olds who reported that, when they study:	Scotland			
	Almost never	Sometimes	Often	Almost Always
they start by figuring out exactly what they need to learn	4%	21%	42%	33%
they make sure that they remember the most important things	1%	13%	44%	41%
they memorise as much as possible	3%	20%	43%	34%
they memorise all new material so that they can recite it	17%	43%	29%	11%
they practice by saying the material to themselves over and over	14%	33%	32%	22%
they force themselves to check to see if they remember what they have learned	7%	31%	39%	22%
they try to figure out which concepts they still haven't really understood	3%	30%	46%	21%
and they don't understand something, they look for additional information to clarify this	6%	30%	39%	25%
they try to understand the material better by relating it to things they already know	3%	28%	47%	21%
they figure out how the information might be useful in the real world	18%	36%	35%	11%

Table 23b. Performance on the PISA reading literacy scale of students by responses to questions on study techniques, Scotland

Mean reading scores of 15 year olds who reported that, when they study:	Scotland			
	Almost never	Sometimes	Often	Almost Always
they start by figuring out exactly what they need to learn	490	511	526	542
they make sure that they remember the most important things	*	486	525	543
they memorise as much as possible	519	514	526	536
they memorise all new material so that they can recite it	547	530	522	500
they practice by saying the material to themselves over and over	525	529	529	524
they force themselves to check to see if they remember what they have learned	492	515	535	544
they try to figure out which concepts they still haven't really understood	481	505	533	554
and they don't understand something, they look for additional information to clarify this	490	512	532	550
they try to understand the material better by relating it to things they already know	504	507	535	540
they figure out how the information might be useful in the real world	539	535	515	521

* based on too few responses to be valid

Homework

9. Twenty three per cent of 15 year olds in Scotland stated that most or all of the time they did their homework while watching television. Thirty one per cent felt that they were never given interesting homework. The percentage of pupils who reported that their teachers grade and make useful comments on their homework is much higher in Scotland than the OECD average. Pupils who completed their homework on time tended to score considerably higher than those who did not, but those who found homework interesting most of the time actually tended to score lower than those who recognised it as interesting only some of the time. Similarly, completing homework during the school day some of the time had a positive relationship with reading scores.

Table 24a. Percentage and performance on the PISA reading literacy scale of students by responses to questions on homework, Scotland

Proportion of 15 year olds who state that:	Scotland			Scotland		
	Never	Sometime	Most or all the time	Never	Sometime	Most or all the time
they complete their homework on time	3%	19%	78%	427	477	543
they do their homework while watching the television	27%	50%	23%	536	532	510
their teachers grade their homework	2%	19%	79%	444	516	532
they finish their homework during the school day	39%	53%	7%	518	540	488
their teachers make useful comments on their homework	9%	45%	47%	492	528	534
they are given interesting homework	31%	54%	15%	512	541	512

Table 24b. Percentage and performance on the PISA reading literacy scale of students by responses to questions on homework, UK

Mean reading score of 15 year olds who state that:	UK			UK		
	Never	Sometime	Most or all the time	Never	Sometime	Most or all the time
they complete their homework on time	2%	19%	78%	429	483	539
they do their homework while watching the television	27%	48%	25%	536	531	504
their teachers grade their homework	2%	21%	77%	419	503	535
they finish their homework during the school day	31%	61%	9%	521	532	496
their teachers make useful comments on their homework	7%	42%	50%	480	522	536
they are given interesting homework	28%	58%	15%	508	537	518

Table 24c. Percentage and performance on the PISA reading literacy scale of students by responses to questions on homework, OECD

Mean reading score of 15 year olds who state that:	OECD			OECD		
	Never	Sometime	Most or all the time	Never	Sometime	Most or all the time
they complete their homework on time	5%	26%	70%	437	471	518
they do their homework while watching the television	36%	42%	23%	503	507	491
their teachers grade their homework	12%	40%	49%	490	509	500
they finish their homework during the school day	22%	55%	23%	491	509	496
their teachers make useful comments on their homework	23%	51%	25%	500	506	497
they are given interesting homework	37%	49%	14%	507	510	464

10. Students who spent longer on their English homework tended to score higher, but this did not necessarily hold if more than 3 hours was spent. Scottish children tended to spend less time on their homework than their counterparts in the rest of the UK, with more than double the proportion spending no time at all on homework.

Table 25. Percentage of students and performance on the PISA reading literacy scale, by length of time spent on English homework, Scotland, UK & OECD

Proportion of 15 year olds and mean reading score of 15 year olds who spend each week on their English homework:	Percentage			Mean reading score		
	Scotland	UK	OECD	Scotland	UK	OECD
no time	12%	5%	14%	490	463	483
less than 1 hour	35%	25%	34%	521	502	491
1 to 3 hours	43%	56%	39%	541	538	513
more than 3 hours	10%	14%	13%	541	545	523

Homework policy and pressure to achieve

11. Homework was more likely to be graded in Scotland than in any other OECD country, and only in the rest of the UK did more students feel that they received useful comments on their homework. A higher proportion of students in Scotland than in any other country felt that the teacher wanted them to work hard in most lessons.

Table 26. Percentage of students by responses to questions on homework and pressure to achieve, by country

	Homework policy				Achievement pressure			
	Percentage of students who report that most of the time or always...				Percentage of students who report that in most or all test language lessons			
	My teachers grade my homework	My teachers make useful comments on my homework	I am given interesting homework	My homework is counted as part of my marks	The teacher wants students to work hard	The teacher tells students that they can do better	The teacher does not like it when students deliver careless work	Students have to learn a lot
OECD countries								
Australia	43	24	11	53	85	41	57	54
Austria	47	19	15	77	64	42	49	57
Belgium	63	23	16	57	52	32	47	40
Canada	41	22	10	66	84	41	62	59
Czech Republic	19	13	10	27	28	51	35	52
Denmark	38	29	8	54	83	21	66	74
Finland	15	12	8	51	72	36	47	56
France	32	24	19	43	45	49	40	43
Germany	12	42	8	43	71	50	48	57
Greece	43	39	35	58	61	70	42	41
Hungary	4	11	16	16	64	61	61	57
Iceland	46	15	8	74	80	51	65	64
Ireland	53	27	11	12	85	54	65	59
Italy	22	30	23	34	84	83	50	60
Japan	35	10	3	64	74	29	16	66
Korea	63	17	4	72	72	47	53	58
Luxembourg	15	21	9	24	57	42	41	46
Mexico	71	23	28	81	50	63	40	49
New Zealand	53	31	15	33	89	52	63	61
Norway	30	16	8	56	67	36	35	53
Poland	21	18	17	48	59	47	49	58
Portugal	45	20	18	75	59	65	48	63
SCOTLAND	79	47	15	22	93	53	59	62
Spain	48	26	17	55	48	56	53	66
Sweden	30	28	9	62	84	39	47	67
Switzerland	10	36	14	25	62	35	41	50
United Kingdom	76	50	14	22	91	49	55	63
United States	61	24	13	79	83	50	58	59
OECD total	47	24	14	61	71	49	47	58
Country mean	39	24	14	50	68	48	49	57
Non-OECD countries								
Brazil	50	30	40	51	68	77	57	79
Latvia	57	17	12	50	46	53	49	59
Liechtenstein	8	44	9	22	65	33	34	56
Russian Federation	39	22	21	42	59	60	61	82

Chart 12. Percentage of students who report that most of the time or always they are given interesting homework

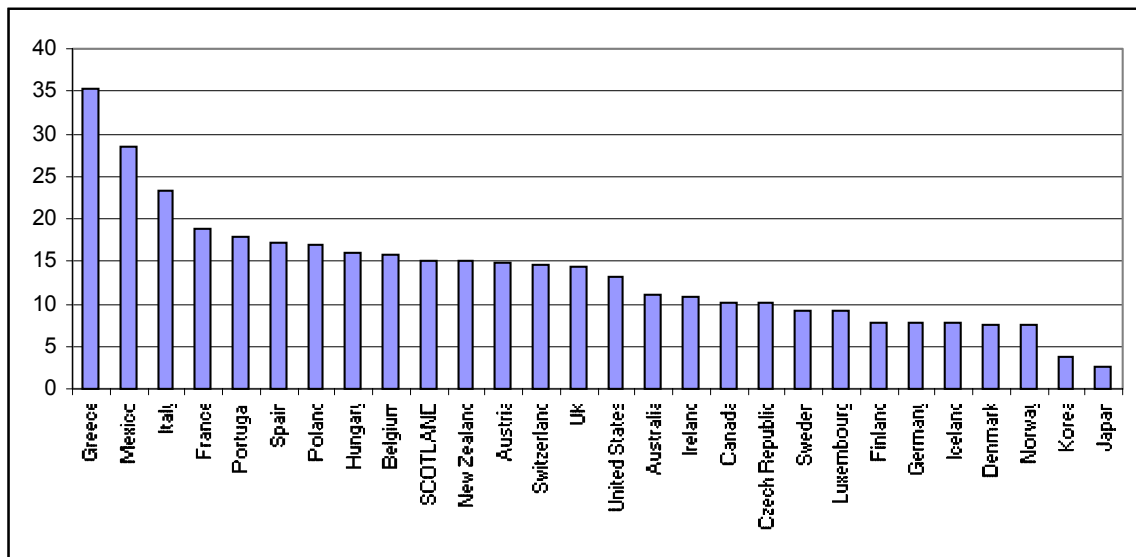
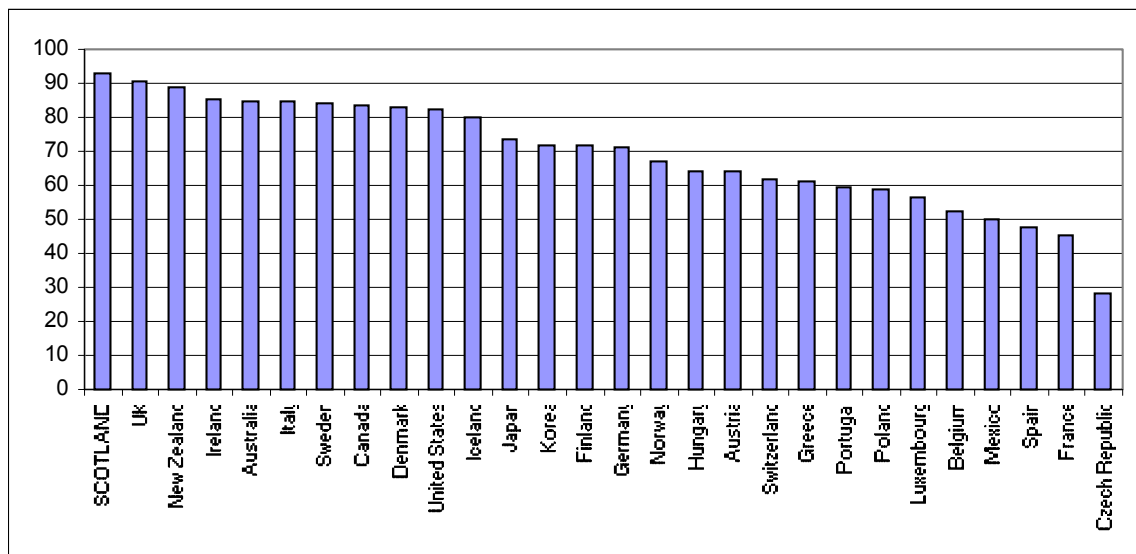


Chart 13. Percentage of students who report that in most or all test language lessons the teacher wants students to work hard



SECTION 5 – ENGAGEMENT WITH READING

Desire to Read

1. One third of 15 year olds in Scotland never or hardly ever read for pleasure. The average reading score for this group was considerably lower than for those who do read for pleasure. Those who read for between 30 minutes and 2 hours a day tend to score higher than those who only read for a short amount of time each day. However, in Scotland and in the OECD as a whole, 15 year olds who said that they read for more than 2 hours a day did not tend to perform as well as 15 year olds who read for pleasure for shorter periods of time.

Table 27. Percentage of students and performance on the PISA reading literacy scale, by length of time spent reading for pleasure, Scotland, UK & OECD

Proportion of 15 year olds and mean reading score of 15 year olds who:	Percentage			Mean reading score		
	Scotland	UK	OECD	Scotland	UK	OECD
Do not read for enjoyment	33%	29%	35%	489	485	481
read for up to 30 minutes a day for pleasure	30%	36%	30%	536	533	511
read for between 30 and 60 minutes a day for pleasure	22%	23%	21%	563	559	522
read for between 1 and 2 hours a day for pleasure	11%	9%	10%	563	556	524
read for more than 2 hours a day for pleasure	3%	3%	4%	524	528	505

2. In Scotland 22 per cent of pupils stated that, for them, reading was a waste of time and 40 per cent stated that they only read if they have to. Both of these proportions are higher than the UK and OECD figures. The average scores of those who responded in this way were much lower than those of the students who disagreed with these statements. Twenty nine per cent considered reading to be one of their favourite hobbies, below the OECD average of 36 per cent.

Table 28a. Percentage and performance on the PISA reading literacy scale of students by responses to questions on reading, Scotland

	Scotland		Scotland	
	Disagree or disagree strongly	Agree or agree strongly	Disagree or disagree strongly	Agree or agree strongly
Proportion of 15 year olds who agree or disagree with the following statements:				
I read only if I have to	60%	40%	553	489
Reading is one of my favourite hobbies	71%	29%	513	564
I find it hard to finish books	61%	39%	549	494
For me, reading is a waste of time	78%	22%	544	471
I cannot sit still and read for long	74%	26%	546	477

Table 28b. Percentage and performance on the PISA reading literacy scale of students by responses to questions on reading, UK

	UK		UK	
	Disagree or disagree strongly	Agree or agree strongly	Disagree or disagree strongly	Agree or agree strongly
Proportion of 15 year olds who agree or disagree with the following statements:				
I read only if I have to	65%	35%	549	485
Reading is one of my favourite hobbies	70%	30%	513	558
I find it hard to finish books	60%	40%	544	500
For me, reading is a waste of time	81%	19%	539	473
I cannot sit still and read for long	74%	26%	544	476

Table 28c. Percentage and performance on the PISA reading literacy scale of students by responses to questions on reading, OECD

	OECD		OECD	
	Disagree or disagree strongly	Agree or agree strongly	Disagree or disagree strongly	Agree or agree strongly
Proportion of 15 year olds who agree or disagree with the following statements:				
I read only if I have to	61%	39%	518	478
Reading is one of my favourite hobbies	64%	36%	493	519
I find it hard to finish books	63%	37%	517	479
For me, reading is a waste of time	79%	21%	513	466
I cannot sit still and read for long	74%	26%	517	463

Reading Material

3. Scottish 15 year olds were much more likely to read magazines or newspapers than they were to read books. Reading patterns were similar in the rest of the UK, although in Scotland there was more reading of newspapers, with 80 per cent claiming to read newspapers at least several times a month. Those reading a large amount of fiction tended to score highest in the reading tests. Pupils reading a large amount of non-fiction, or reading from the internet also tended to perform well above average. Only the reading of comics failed to have a positive correlation with reading scores.

Table 29a. Percentage and performance on the PISA reading literacy scale of students by responses to questions on reading material, Scotland

Proportion of 15 year olds who read the following for pleasure	Scotland			Scotland		
	Never or Hardly Ever	Up to once a month	At least several times a month	Never or Hardly Ever	Up to once a month	At least several times a month
Magazines	4%	27%	69%	495	528	529
Comic books	67%	25%	8%	535	521	491
Fiction	27%	44%	29%	476	533	569
Non-fiction books	32%	49%	19%	490	545	548
Emails and web-pages	34%	22%	45%	502	533	546
Newspapers	6%	15%	80%	481	532	530

Table 29b. Percentage and performance on the PISA reading literacy scale of students by responses to questions on reading material, UK

Mean reading score of 15 year olds who read the following for pleasure	UK			UK		
	Never or Hardly Ever	Up to once a month	At least several times a month	Never or Hardly Ever	Up to once a month	At least several times a month
Magazines	4%	28%	68%	490	533	526
Comic books	68%	24%	7%	530	531	484
Fiction	27%	44%	29%	475	532	568
Non-fiction books	31%	48%	21%	486	544	549
Emails and web-pages	29%	23%	48%	497	526	546
Newspapers	8%	21%	71%	494	524	531

Table 29c. Percentage and performance on the PISA reading literacy scale of students by responses to questions on reading material, OECD

Mean reading score of 15 year olds who read the following for pleasure	OECD			OECD		
	Never or Hardly Ever	Up to once a month	At least several times a month	Never or Hardly Ever	Up to once a month	At least several times a month
Magazines	7%	28%	66%	439	493	513
Comic books	44%	28%	29%	502	498	508
Fiction	27%	44%	28%	465	509	529
Non-fiction books	36%	46%	18%	480	517	513
Emails and web-pages	35%	19%	45%	477	496	527
Newspapers	13%	26%	60%	466	491	516

4. Twelve per cent of 15 year olds stated that there were no more than 10 books in their home. This figure is the same as the OECD average but lower than the UK as a whole. The number of books in a students home seemed to show a very strong correlation with reading test score in Scotland, UK and OECD.

Table 30. Percentage of students and performance on the PISA reading literacy scale, by number of books in their home, Scotland, UK & OECD

Proportion of 15 year olds and mean reading score of 15 year olds with the following number of books at home	Percentage			Mean reading score		
	Scotland	UK	OECD	Scotland	UK	OECD
None	1%	1%	2%	400	396	386
1-10	11%	7%	10%	458	447	430
11-50	25%	21%	22%	502	494	474
51-100	20%	21%	21%	525	514	499
101-250	21%	21%	21%	550	547	527
201-500	12%	15%	14%	579	568	546
500+	10%	13%	10%	586	577	549

SECTION 6 – SCHOOL STAFF AND RESOURCES

School Size

1. Because of the large number of influences upon every pupil, no single factor can be expected to explain any large part of the variation in performance. The number of pupils in a school does not appear to have any significant correlation with test scores of Scottish pupils. However, in the UK as a whole there is a very small, but significant, effect that pupils in large schools perform worse than those in smaller ones. This effect in the UK is much larger when the number of pupils per teacher is considered, accounting for 1.7 per cent of variation in test scores. Pupils in schools with a large number of pupils for each teacher tend to perform considerably worse than those with fewer pupils per teacher. In Scotland, the effect is again not significant.

2. In Scotland, however, a significant relationship is noted between reading test score and the number of computers per pupil. This accounts for 0.5 per cent of the variation between pupils' scores.

Table 31a. Change in the PISA reading literacy score per 100 students, Scotland & UK

The relationship between school size and reading test scores									
	Change in reading score per 100 students			Proportion of variation in reading score accounted for	Maximum school size in sample	Average school size in sample	Minimum school size in sample	Standard deviation of school sizes in sample	
	Mean	95% Confidence Interval							Level of Significance
Scotland	-0.60	(-1.88	0.68)	none	0.0%	2061	916	168	319
UK	-0.85	(-1.35	-0.34)	high	0.1%	2520	932	61	381

Table 31b. Change in the PISA reading literacy score per pupil per teacher, Scotland & UK

The relationship between pupil: teacher ratios and reading test scores									
	Change in reading score per pupil per teacher			Proportion of variation in reading score accounted for	Maximum number of pupils per teacher in sample	Average number of pupils per teacher in sample	Minimum number of pupils per teacher in sample	Standard deviation of number of pupils per teacher in sample	
	Mean	95% Confidence Interval							Level of Significance
Scotland	0.04	(-1.37	1.45)	none	0.0%	25.0	14.1	7.5	3.0
UK	-4.76	(-5.53	-3.99)	high	1.7%	25.0	15.4	5.8	2.5

Table 31c. Change in the PISA reading literacy score per computer per pupil, Scotland & UK

The relationship between computer: pupil ratios and reading test scores									
	Change in reading score per 0.1 computers per pupil			Proportion of variation in reading score accounted for	Maximum computer: pupil ratio in sample	Average computer: pupil ratio in sample	Minimum computer: pupil ratio in sample	Standard deviation of computer: pupil ratios in sample	
	Mean	95% Confidence Interval							Level of Significance
Scotland	7.37	(2.95	11.79)	high	0.5%	0.77	0.21	0.07	0.09
UK	1.61	(-2.23	5.45)	none	0.0%	0.77	0.17	0.0	0.08

Quality and Use of School Resources

3. Thirteen per cent of 15 year olds in Scotland were enrolled in schools where the headteacher was concerned about the lack of educational material in the library. This proportion was higher in all other countries except Hungary and New Zealand. The comparison between Scotland and the UK as a whole is particularly striking. The situation is perceived to be much worse in the rest of the UK. The number of 15 year olds in Scotland reporting that they never used the school library was much closer to the OECD average.

4. The proportion of headteachers concerned about the lack of computers was considerably higher than the proportion concerned about the quality of the library in most countries, including Scotland (35 per cent) (in the UK as a whole it was much higher at 56 per cent). The proportion of 15 year olds in Scotland reporting that they never used computers at school was well below the OECD average, but higher than in a number of countries, including the rest of the UK and the Scandinavian countries.

Table 32. Quality and use of school resources, by country

	Quality and use of the school library			Availability and use of computers			Quality and use of science laboratory equipment		
	Percentage of students enrolled in schools where principals report that learning is hindered to some extent or a lot by lack of instructional material in the library	Percentage of students who report that they		Percentage of students enrolled in schools where principals report that learning is hindered to some extent or a lot by lack of computers	Percentage of students who report that they		Percentage of students enrolled in schools where school principals report that learning is hindered to some extent or a lot by inadequate science laboratory equipment	Percentage of students who report that they	
		never use the school library	use the school library at least several times a month		never use computers in the school	use computers in the school at least several times a month		never use the science laboratory	use the science laboratory at least several times a month
OECD countries									
Australia	17	11	35	30	8	60	16	16	61
Austria	22	67	4	38	15	68	34	57	25
Belgium	24	69	4	19	27	48	19	43	27
Canada	20	19	22	31	14	50	19	20	44
Czech Republic	25	74	4	37	33	47	22	62	17
Denmark	14	14	43	28	2	79	21	11	77
Finland	43	53	6	43	6	64	43	67	9
France	15	31	20	28	35	22	13	43	33
Germany	35	73	10	50	38	32	32	41	37
Greece	50	60	6	68	31	37	64	50	14
Hungary	12	42	11	13	15	72	27	70	8
Iceland	37	29	21	45	10	66	53	47	23
Ireland	48	69	7	41	35	42	42	22	59
Italy	34	71	3	32	26	53	37	51	21
Japan	24	50	16	31	60	22	34	50	19
Korea	35	65	13	24	30	57	28	25	40
Luxembourg	16	51	11	23	22	49	14	55	24
Mexico	60	16	33	68	49	30	66	33	35
New Zealand	11	10	32	40	16	41	19	15	65
Norway	59	20	22	61	11	44	49	10	62
Poland	32	19	21	39	27	55	43	37	33
Portugal	17	16	38	39	30	33	23	47	33
SCOTLAND	13	31	20	35	16	59	21	21	64
Spain	27	44	14	30	40	37	32	37	29
Sweden	27	15	36	51	10	60	16	6	83
Switzerland	15	46	12	23	23	43	16	44	29
United Kingdom	38	31	18	56	9	63	42	7	67
United States	21	21	20	31	12	44	23	23	34
OECD total	29	36	18	38	29	41	32	33	34
Country mean	30	39	18	38	24	49	32	37	37
Non-OECD countries									
Brazil	36	21	28	63	61	14	55	57	11
Latvia	47	14	28	40	30	45	60	50	18
Liechtenstein	21	43	9	41	12	57	58	33	41
Russian Federation	78	12	42	86	52	32	79	17	50

Use of School Resources

5. Twenty one per cent of 15 year olds in Scotland stated that they used the school library at least several times a month. However, curiously, this group did not perform as well as the 49 per cent who used the library up to once a month. Thirty one per cent stated that they never or hardly ever used the library. Sixty per cent used computers at school at least several times a month, and 26 per cent used the internet at school at least several times a month. There was a much greater use of the internet in the rest of the UK, and slightly more use of computers and science laboratories.

Table 33a. Percentage and performance on the PISA reading literacy scale of students by responses to questions on use of school resources, Scotland

Proportion of 15 year olds who use the following at school:	Scotland			Scotland		
	Never or Hardly Ever	Up to once a month	At least several times a month	Never or Hardly Ever	Up to once a month	At least several times a month
School library	31%	49%	21%	510	539	530
Computers	15%	25%	60%	527	527	529
Calculators	7%	8%	85%	501	487	534
Internet	49%	25%	26%	521	545	526
Science laboratories	21%	15%	64%	480	508	549

Table 33b. Percentage and performance on the PISA reading literacy scale of students by responses to questions on use of school resources, UK

Mean reading scores of 15 year olds who use the following at school:	UK			UK		
	Never or Hardly Ever	Up to once a month	At least several times a month	Never or Hardly Ever	Up to once a month	At least several times a month
School library	31%	50%	19%	513	535	527
Computers	9%	27%	64%	525	537	523
Calculators	8%	12%	80%	504	473	537
Internet	40%	25%	35%	523	536	525
Science laboratories	7%	25%	68%	452	514	540

Table 33c. Percentage and performance on the PISA reading literacy scale of students by responses to questions on use of school resources, OECD

Proportion of 15 year olds who use the following at school:	OECD			OECD		
	Never or Hardly Ever	Up to once a month	At least several times a month	Never or Hardly Ever	Up to once a month	At least several times a month
School library	38%	42%	19%	496	509	503
Computers	30%	26%	44%	492	509	507
Calculators	22%	15%	63%	501	467	513
Internet	49%	24%	27%	492	517	512
Science laboratories	35%	28%	36%	478	506	525

Availability of computers and computer networks in school

6. The ratio of students per computer in secondary schools in Scotland is less than or equal to that in all other OECD countries and the percentage of these computers which is available to students is higher than in any other country. However, the percentage of computers connected to the internet is well below the OECD, and UK, averages.

Table 34. Percentage of students by responses to questions on availability of computers and computer networks in schools, by country

	Ratio of students to computers	Percentage of computers available to 15-year-olds	Percentage of computers available only to teachers	Percentage of computers available only to administrative staff	Percentage of computers connected to the Internet/World Wide Web	Percentage of computers connected to a local area network (LAN)
	median	%	%	%	%	%
Australia	5	70	16	8	80	75
Austria	7	75	9	7	69	56
Belgium	11	62	9	16	45	33
Czech Republic	15	63	20	15	40	46
Denmark	8	63	8	10	65	50
Finland	8	77	11	8	84	57
France	11	59	9	13	26	19
Germany	22	68	10	13	37	25
Greece	28	51	24	33	26	23
Hungary	9	72	11	10	58	65
Iceland	10	51	15	8	83	62
Ireland	14	69	10	8	47	28
Italy	12	61	10	13	24	21
Japan	12	66	20	4	35	40
Korea	9	56	34	5	61	70
Luxembourg	9	70	9	7	88	86
Mexico	23	62	16	17	14	17
New Zealand	6	72	14	8	62	65
Norway	6	51	18	14	50	30
Poland	26	67	14	13	35	25
Portugal	36	61	28	34	35	31
SCOTLAND	5	84	10	6	38	45
Spain	21	58	18	9	41	37
Sweden	8	55	14	10	74	62
Switzerland	9	70	14	9	47	37
United Kingdom	8	78	10	7	51	53
United States	5	73	22	6	39	61
Country mean	13	65	15	12	50	45
Brazil	26	53	19	34	27	27
Latvia	5	78	24	19	42	57
Liechtenstein	57	77	19	8	79	67
Russian Federation	10	74	10	13	6	18

Availability of computers to use at home and at school

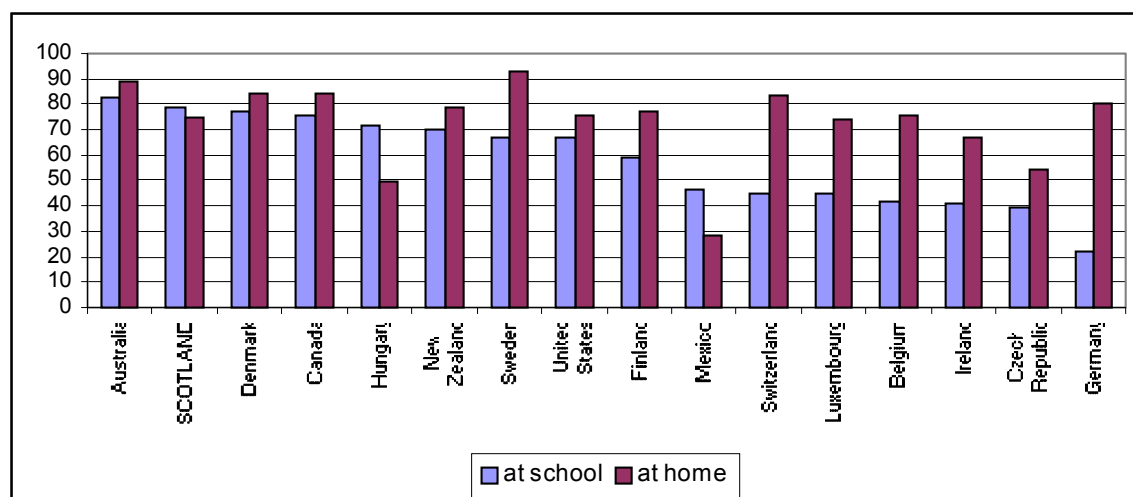
7. Questions about the availability and use of computers were asked in Scotland but not in England and Northern Ireland.

8. In Scotland, three quarters of pupils reported that computers were available for use at home at least a few times each week. The percentage of pupils reporting that computers were available at least a few times each week in school was actually higher. Of the OECD countries surveyed, this was only true also in Hungary and Mexico, and only Australia had computers more readily available in school.

Table 35. Percentage of students by responses to questions on availability of computers to use at home and at school, by country

	Availability of computers to use at home			Availability of computers to use at school		
	At least a few times each week	Less than once a week	Never	At least a few times each week	Less than once a week	Never
	%	%	%	%	%	%
Australia	89	2	9	83	15	2
Belgium	75	9	16	42	38	20
Canada	85	3	12	76	19	5
Czech Republic	54	5	41	39	40	21
Denmark	84	7	9	77	21	2
Finland	77	5	18	59	36	4
Germany	80	7	13	22	48	30
Hungary	50	6	44	71	22	7
Ireland	67	4	29	41	34	25
Luxembourg	74	12	14	45	42	13
Mexico	28	6	66	46	17	37
New Zealand	78	4	18	70	25	5
SCOTLAND	75	4	21	79	16	5
Sweden	93	2	6	67	28	5
Switzerland	84	6	10	45	43	12
United States	76	9	15	67	23	10
Country mean	70	6	24	56	30	14
Brazil	29	8	64	21	23	55
Latvia	28	8	64	49	33	18
Liechtenstein	83	5	12	49	46	5
Russian Federation	20	8	73	28	34	38

Chart 14. Availability of computers to use at school and at home at least a few times each week, by country



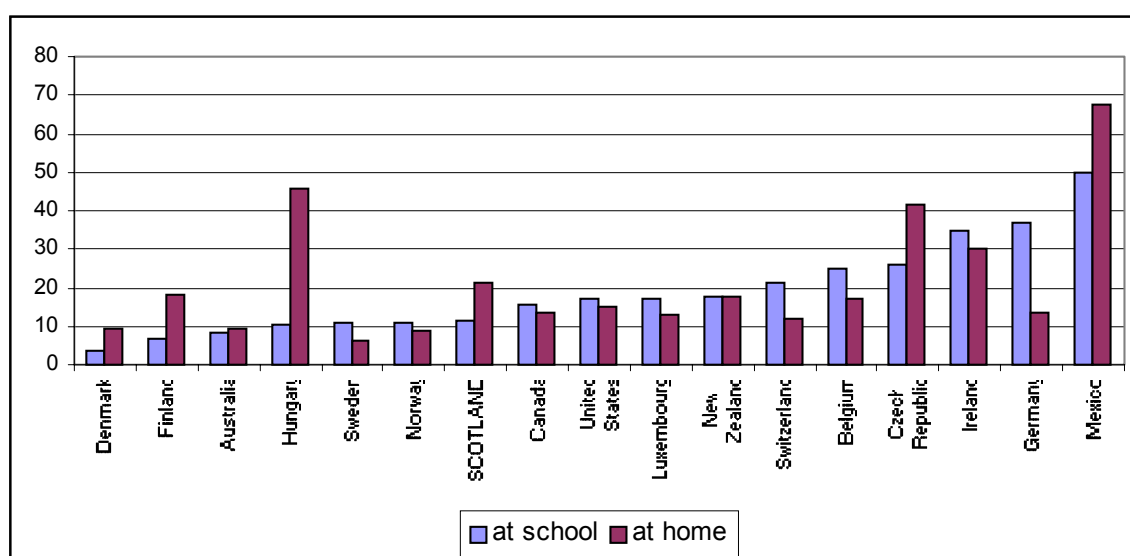
Use of computers at home and at school

9. Sixty five per cent of 15 year olds reported using computers at home at least a few times a week in Scotland, slightly above the OECD average. Fifty seven per cent reported using computers at least a few times a week at school in Scotland, exceeded only in Denmark and Hungary.

Table 36. Percentage of students by responses to questions on frequency of use of computers at home and at school, by country

	Use of computers at home			Use of computers at school		
	At least a few times each week	Less than once a week	Never	At least a few times each week	Less than once a week	Never
	%	%	%	%	%	%
Australia	73	17	10	50	41	8
Belgium	63	20	17	30	44	25
Canada	73	14	13	39	45	16
Czech Republic	47	12	41	28	46	26
Denmark	70	21	9	59	37	4
Finland	67	15	18	48	46	7
Germany	66	21	14	18	46	37
Hungary	43	11	46	65	24	10
Ireland	55	15	30	27	39	35
Luxembourg	66	21	13	37	46	17
Mexico	24	8	68	34	16	50
New Zealand	63	19	18	34	48	17
Norway	74	17	9	28	61	11
SCOTLAND	65	14	21	57	32	12
Sweden	82	12	6	45	44	11
Switzerland	64	24	12	22	57	21
United States	67	18	15	37	46	17
Country mean	60	16	24	38	43	19
Brazil	25	12	64	12	29	59
Latvia	26	9	65	41	38	21
Liechtenstein	63	23	14	29	61	10
Russian Federation	18	8	74	26	35	39

Chart 15. Percentage of 15-year-olds who reported never using computers at home and at school, by country



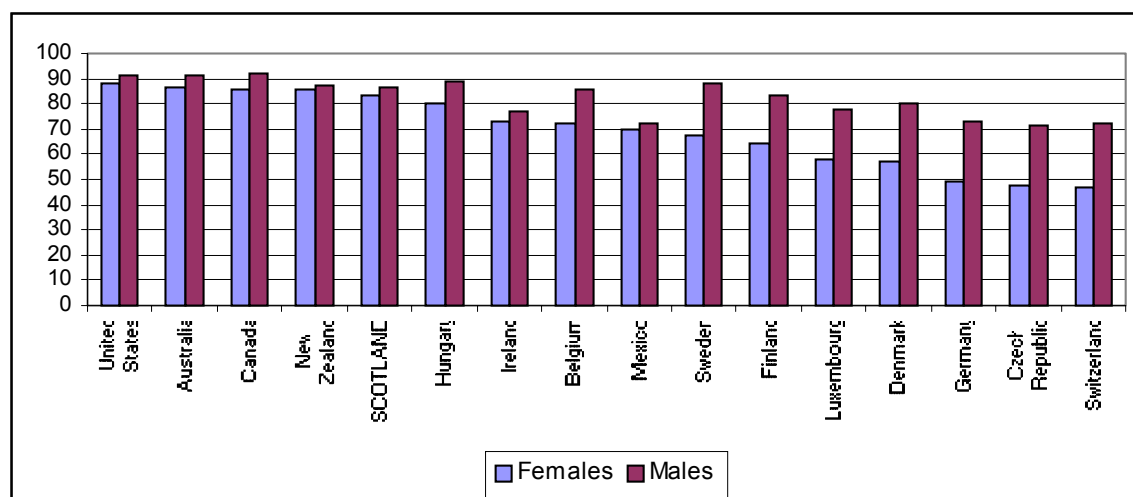
Perceived comfort in use of computers

10. In all countries surveyed, more male students felt comfortable with computers than female students. In Scotland this difference was fairly small, with 83 per cent of female students feeling comfortable in the use of computers, compared to 87 per cent of male students. Both these figures were well above the OECD average.

Table 37. PISA index of comfort with and perceived ability to use computers, by gender, by country

	PISA index of comfort with and perceived ability to use computers		Using a computer			
			Very comfortable or comfortable		Somewhat comfortable or not at all comfortable	
	Females	Males	Females	Males	Females	Males
			%	%	%	%
Australia	0.30	0.56	86	91	14	9
Belgium	-0.07	0.35	72	86	28	14
Canada	0.32	0.67	85	92	15	8
Czech Republic	-0.53	-0.07	47	72	53	28
Denmark	-0.41	0.31	57	80	43	20
Finland	-0.42	0.19	64	84	36	16
Germany	-0.53	-0.07	49	73	51	27
Hungary	-0.48	-0.20	80	89	20	11
Ireland	-0.19	-0.08	73	77	27	23
Luxembourg	-0.29	0.11	58	77	42	23
Mexico	-0.23	-0.14	70	72	30	28
New Zealand	0.21	0.27	85	87	15	13
SCOTLAND	0.31	0.46	83	87	17	13
Sweden	-0.41	0.22	67	88	33	12
Switzerland	-0.48	-0.03	47	73	53	27
United States	0.54	0.70	88	91	12	9
Country mean	-0.17	0.21	70	82	30	18
Brazil	-0.62	-0.35	57	68	43	32
Latvia	-0.35	-0.07	59	74	41	26
Liechtenstein	-0.52	-0.02	43	77	57	23
Russian Federation	-0.39	-0.24	53	62	47	38

Chart 16. Percentage of 15-year-old males and females who reported that they were very comfortable or comfortable using a computer



Interest in Computers

11. In Scotland, both male and female students showed more interest in computers than in the OECD as a whole. Eighty seven per cent of females and 95 per cent of males found playing or working with a computer really fun.

Table 38. PISA index of interest in computers, by gender, by country

	PISA index of interest in computers		It is important to work with a computer		Playing or working with a computer is really fun		Student uses computer because it interests them		Student forgets the time when working with a computer	
	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males
			%	%	%	%	%	%	%	%
Australia	-0.41	-0.04	64	72	74	87	52	71	52	58
Belgium	-0.22	0.18	60	73	87	94	62	78	58	72
Canada	-0.24	0.07	58	70	82	90	58	76	65	68
Czech Republic	-0.21	0.14	61	69	85	93	68	81	57	70
Denmark	-0.66	0.18	49	75	74	94	37	77	47	70
Finland	-0.39	0.10	47	66	78	92	68	85	50	63
Germany	0.04	0.43	69	84	89	96	70	87	73	83
Hungary	-0.21	0.14	58	69	84	90	64	81	61	71
Ireland	-0.02	0.02	55	58	92	94	72	75	75	74
Luxembourg	0.12	0.45	70	83	88	93	74	88	77	86
Mexico	0.29	0.27	88	89	87	88	84	84	87	85
New Zealand	-0.41	-0.15	55	63	78	87	54	69	55	56
Scotland	0.03	0.26	69	76	87	95	69	83	72	73
Sweden	-0.18	0.29	59	81	79	95	74	88	59	67
Switzerland	-0.12	0.24	60	76	83	91	65	82	70	78
United States	0.33	0.29	89	84	94	89	78	83	73	73
Country mean	-0.14	0.18	63	74	84	92	66	80	64	72
Brazil	0.34	0.39	93	93	95	95	91	94	69	70
Latvia	0.28	0.34	79	77	93	92	90	91	74	81
Liechtenstein	-0.02	0.35	69	81	84	92	68	89	69	78
Russian Federation	0.18	0.18	77	75	92	92	90	90	80	85