

INFORMATION NOTE

IRISH STUDENTS' PERFORMANCE IN PISA 2009

WHAT IS PISA?

- PISA is the OECD's Programme for International Student Assessment. It assesses the achievement of 15-year-old students in reading literacy, mathematical literacy and scientific literacy and is carried out at three-year intervals in participating countries. It is implemented in Ireland on behalf of the Department of Education and Skills by the Educational Research Centre, Drumcondra, Dublin.
- The latest round of PISA tests took place in 2009 and the report on the outcomes were published by the OECD on 7 December 2010.

SUMMARY

- Ireland's 15-year-old students scored above the OECD average¹ in science.
- Students in Ireland performed at the OECD average in reading and below average in mathematics.
- The PISA 2009 outcomes show declines in the reading and maths scores of students in Ireland. However, Ireland's National Assessments of Mathematics and English Reading show stable literacy and numeracy levels among Irish primary students and standards have remained constant in the State Examinations taken by all students at post-primary level. This is supported by Irish post-primary students' strong literacy-related scores in the International Civic and Citizenship Education (ICCS) Study 2009. The OECD has noted that "performance changes [in PISA] are associated with a fairly large standard error". Irrespective of whether or not the decline in the scores on the PISA test represent a real decline in standards, the Minister for Education and Skills takes these findings seriously and is taking a proactive approach to improving literacy and numeracy standards.
- Ireland's strong showing in science reflects the investments that it has made in science education at primary and secondary school levels, including curriculum changes and intensive teacher education programmes over the last ten years.
- Earlier this year, the Department of Education and Skills introduced *Project Maths*, a major initiative which includes radical changes to the maths curriculum in all post-primary schools. This has been supported by intensive teacher in-service programmes. *Project Maths* is designed to increase the numbers of students studying maths at the higher level in the State examinations and to increase students' achievement in maths generally. The introduction of additional recognition for strong maths results for college entry has provided a further incentive in this regard. It is too early to gauge the effect of Project Maths on PISA.
- Last month, the Minister for Education and Skills launched a comprehensive national plan to improve literacy and numeracy in all schools and in teacher education.
- Independent reviews show that Ireland's education system continues to provide a high quality and well educated workforce. These include:
 - A November 2009 EU study on the efficiency and effectiveness of public spending on tertiary education in the EU ranked Ireland first in terms of recruiters' views on the employability of graduates².

¹ PISA 2009 was administered in 65 countries made up of 34 OECD member countries and a further 31 partner countries. PISA scores for each country are presented with reference to the average performance of students in OECD countries.

² Study on the efficiency and effectiveness of public spending on tertiary education, November 2009. Commissioned by the Directorate General Economic and Financial Affairs of the European Commission.

- In the 2010 IMD World Competitiveness Yearbook, Ireland was ranked fourth in the world in terms of availability of skilled labour and openness to new ideas, sixth on labour productivity and seventh for the flexibility and adaptability of people.
- Ireland has the third highest proportion of maths, science and computer graduates in the 20-29 age cohort in the EU³.
- Ireland has the highest proportion of graduates in the 25-34 age group in the EU.
- Ireland ranks seventh highest of the 27 EU countries on retention of students to the end of senior cycle in post-primary.²
- 7 out of 10 Irish school leavers go on to participate in higher education.

SCIENCE

- Students in Ireland performed at above the OECD average in science in PISA 2009.
- Their scores placed them in the top one-third of the 65 countries that participated in the PISA tests.
- Ireland's students ranked 14th highest in the OECD and 20th highest of the 65 participating countries. Ireland's students ranked 6th highest in the EU.
- Irish students were ranked ahead of students in countries such as the United States, Hungary, Norway, Denmark and France.
- The science performance of students in Ireland placed them among "above-average" performing countries such as Finland, Hong-Kong China, Singapore, Japan, Canada, Australia and New Zealand.

Reforms of the science curriculum have paid off

- Experts attribute the strong results in the PISA science tests to the successful implementation of major reforms in recent years in the science curriculum in Irish primary and post-primary schools.

READING

- The performance of 15-year olds in Ireland on the PISA reading tests places them among the "average performing" countries. Ireland's students ranked 8th highest in the EU.
- Irish students performed at about the same level as students in Norway, Switzerland, the United States, Sweden, Germany, France, the United Kingdom and Hungary.
- Students in Ireland performed very strongly in reading in all previous rounds of PISA. Second-year students in Ireland's post-primary schools obtained a high literacy-related score in the International Civic and Citizenship Education (ICCS) Study 2009.

Ireland has already launched a major plan to improve literacy and numeracy

- Ireland's Tánaiste (Deputy Prime Minister) and Minister for Education and Science, Mary Coughlan, launched a major national plan to improve literacy and numeracy in schools in November 2010.
- Radical changes are planned for teacher education, and in curriculum and assessment at school level and nationally. The plan aims to place Irish students among the highest performing students world-wide in literacy and numeracy.

³ Source: Eurostat Yearbook 2010

MATHEMATICS

- The results of PISA 2009 rank Irish students' mathematics scores as below the OECD average.
- The performance of Irish students is similar to that of students in Sweden, the Czech Republic, the United Kingdom, Hungary, Luxembourg, the United States and Spain.

Ireland has already overhauled its Maths curriculum at second level

- Ireland's Department of Education and Skills introduced *Project Maths* in all post-primary schools in September 2010. The programme is bringing major reforms to the maths curriculum and to the teaching of mathematics in second-level schools. A nation-wide programme of teacher in-service education has complemented *Project Maths*.
- The goal of *Project Maths* is to increase standards in maths, especially problem solving, and to ensure that greater proportions of students study higher-level maths for the State examinations. The maths curriculum has been completely overhauled to encourage greater uptake of maths and higher standards. The introduction of additional recognition for strong maths results for college entry has provided a further incentive in this regard.
- The introduction of the new maths programme has been widely supported by industry and the science and technology community.
- The students who took PISA 2009 had not experienced the benefits of *Project Maths* at that stage.

DECLINES IN READING AND MATHEMATICS

- Despite the strong showing in the PISA 2009 science tests, the Irish results in reading and mathematics show declines when compared to previous rounds of PISA.
- Irish students' ranking in reading has fallen from 5th in the PISA league tables in 2000 to 17th in 2009 among the 34 countries that participated in both rounds of PISA.
- The ranking of Irish students in mathematics fell from 20th in 2003 to 26th in 2009 among the countries that participated in PISA in both of those years.

Extent and significance of the declines should be treated with caution

- The extent of the falls in the reading and maths scores of students in Ireland was unexpected. Few educational systems have ever experienced *actual* changes in educational standards of the size reported for Ireland by PISA 2009 in such a relatively short period of time.
- In order to better understand the declines in reading and maths scores, the Department of Education and Skills commissioned national experts at Educational Research Centre and a team of international experts at Statistics Canada to conduct separate detailed analyses of the PISA 2009 results for Ireland.
- The experts attribute some of the declines to changes in the profile of Ireland's student population, including larger numbers of migrant students who do not speak English as a first language and greater inclusion of students with special educational needs in mainstream schools where the PISA tests were carried out. Ireland's success in encouraging all students to remain in education for longer may also be reflected in the overall average scores of its students.
- Other than for these students, the experts from Statistics Canada and Ireland's ERC have advised that it is difficult to be certain that there is an underlying real decline in standards over time without further evidence. The available evidence shows stable standards over time in literacy and maths in Irish schools, so it is not possible to conclude definitively that standards in literacy and numeracy have fallen in Ireland.

- The national and international experts have cautioned Ireland's Department of Education and Skills against reading too much into a single set of PISA outcomes. They believe that it is not possible to say at this time whether the decline in the 2009 PISA tests indicates an *actual* decline in standards in Ireland. Commenting on the Irish scores, Dr Andreas Schleicher, Head of the Indicators and Analysis Division of the OECD has noted that "performance changes [in PISA] are associated with a fairly large standard error."
- However, the Minister for Education and Skills has stated that she will not ignore the possibility that there may have been some decline in actual standards and she is taking a pro-active approach to improving standards in literacy and numeracy.

INDEPENDENT REVIEWS SHOW THAT IRELAND'S EDUCATION SYSTEM CONTINUES TO PROVIDE A HIGH QUALITY AND WELL EDUCATED WORKFORCE

- A November 2009 EU study on the efficiency and effectiveness of public spending on tertiary education in the EU ranked Ireland first in terms of recruiters' views on the employability of graduates⁴.
- In the 2010 IMD World Competitiveness Yearbook, Ireland was ranked fourth in the world in terms of availability of skilled labour and openness to new ideas, sixth on labour productivity and seventh for the flexibility and adaptability of people.
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FURTHER QUERIES

Further information may be obtained from the Department of Education and Skills, Dublin Ireland by contacting:

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Further technical information regarding the PISA 2009 results for Ireland may be obtained from the Educational Research Centre, Dublin by contacting:

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⁴ Study on the efficiency and effectiveness of public spending on tertiary education, November 2009. Commissioned by the Directorate General Economic and Financial Affairs of the European Commission.

⁵ Source: Eurostat Yearbook 2010