



# Aviva Health Schools' Fitness Barometer 2015



[www.avivahealth.ie/fitnesschallenge](http://www.avivahealth.ie/fitnesschallenge)

The Schools' Fitness Challenge is sponsored by Aviva Health Insurance. It was developed by Dublin City University and the Wellness Economic Initiative Alliance and is supported by Elvery's Sports. The challenge was overseen and assessed by exercise physiologist Dr. Sarah Kelly and by the creator of the Schools' Fitness Challenge, exercise physiologist, Professor Niall Moyna from the Centre for Preventive Medicine, DCU. The software programmes to calculate and analyse the results of the Aviva Health Schools' Fitness Challenge were developed by Dr. Mark Roantree, Senior Lecturer at the School of Computing Dublin City University.



**James Parker**  
CEO Aviva Health  
Insurance Ireland Limited

As CEO for Aviva Health, James is an advocate for the Aviva Health Schools Fitness Challenge and believes in taking a pro-active approach to managing your health. The benefits of the Schools' Fitness Challenge for Aviva Health are numerous. The initiative is primarily contributing to the company's long-term strategy of improving the health of children in Ireland and future generations.

James lives in Lisburn with his family. He is father to four children, three boys and a girl who keep the whole family actively involved in sport.



**Professor Niall Moyna**  
Centre for Preventive  
Medicine, DCU

Niall is a Professor in the School of Health and Human Performance and a member of the Centre for Preventive Medicine in DCU. A familiar face, Niall actively highlights the importance of childhood fitness as the key to tackling the effect of inactivity and low fitness on lifestyle-mediated diseases, primarily cardiovascular disease.

Prof. Moyna received his Master's degree from Purdue University, Indiana, PhD from the University of Pittsburgh, and completed a three year National Institute of Health Post-Doctoral Research Fellowship in immunology at the University of Pittsburgh Medical Centre.



**Dr. Sarah Kelly**  
Department of Science  
and Health, ITC

Sarah is an exercise physiologist and advocate of the School's Fitness Challenge. Sarah is lecturer in the Department of Science and Health in Institute of Technology Carlow. Sarah completed her PhD. in Clinical Exercise Physiology in Dublin City University under the supervision of Professor Niall Moyna. She also holds a Bachelor of Science degree in Sport Science and Health and a Masters in Exercise Physiology, both from Dublin City University.

Sarah's research interests have focused on both sports performance and exercise/health-related issues. A major focus of her research is the role of exercise in the prevention of cardiovascular disease, specifically examining how a single exercise session and exercise training effects blood vessels in healthy and diseased individuals. Sarah was a Super League basketball player.



**Dr. Mark Roantree**  
School of Computing,  
DCU

Mark is a Senior Lecturer at Dublin City University with 27 years experience in both an academic and industrial capacity. Mark developed the programs that calculate the fitness levels analysis and the results of the Aviva Health Schools Fitness Challenge.

Working at Dublin City University for 18 years, Mark is founder of the Interoperable Systems Group. He has been awarded €2.3 million in research funding over the last decade, where he has published over 80 research papers and graduated 15 PhD and MSc students.



**Ciaran Faughnan**  
CEO Wellness Economic  
Alliance

Ciaran is the CEO of the newly formed Wellness Economic Alliance.

Ciaran brought Aviva Health Insurance and DCU together to deliver the Schools Fitness Challenge. The vision of the Alliance is an Ireland in which wellness is a core value at individual, community and national levels. The mission is to identify, develop and deliver targeted wellness economic initiatives in Ireland, but with a global potential. This is on a basis which is collaborative, inclusive, measurable, and sustainable. The goal is transformative long term behavioural change in health utilising the latest ITC technologies, new applications and an incentivised economic model to support this objective.

# About the Aviva Health Schools' Fitness Challenge

Aviva Health Schools' Fitness Challenge is a national fitness initiative that was designed to assess fitness levels among Irish students with the aim of improving overall health and fitness in 2015. The initiative, which began in 2013, invited secondary schools throughout the country to join in making physical fitness a national priority, and to encourage young people to adopt a healthier and more active lifestyle for the benefit of their future health.

The challenge was open to all 1st, 2nd, 3rd and 4th year pupils, and ran over a ten week period from January to April 2015, assessing the fitness levels of Irish school children and advocating the improvement of their overall health.

There are three phases to Aviva Health Schools' Fitness Challenge:

- 1) Initial fitness test to measure current fitness levels
- 2) A six week intervention training programme to improve cardiovascular fitness
- 3) Repeat fitness test to measure new fitness levels

There are six difference prize categories, and depending on the category, winners receive a gift voucher from Aviva Health Insurance to the value of €500 or €1,000 towards their choice of sports equipment available from Elvery's Sports.

Aviva Health Schools' Fitness Challenge would like to thank all principals, physical education teachers and teachers for supporting the challenge, which would not have been a success without them.

For more information on the Aviva Health Schools' Fitness Challenge visit [www.avivahealth.ie/fitnesschallenge](http://www.avivahealth.ie/fitnesschallenge)

## The Bleep Test



The fitness test or bleep test as it is often called involves continuous running between two lines, 20 metres apart, in time to recorded beeps. The running speed is increased at approximately 1-minute intervals. Participants attempt to complete as many runs (shuttles) as possible while keeping in time with the beeps.

## Analysis of Results

The goal of Aviva Health Schools' Fitness Challenge is to highlight the importance of cardiovascular fitness and establishing the habit of being regularly active from an early age. The challenge also demonstrates that as little as six weeks of exercise training can lead to significant improvements in fitness in young girls and boys, and that tailored interventions are extremely effective.

Recent research has revealed that 15-16 year olds have already showed signs of heart disease due to poor fitness<sup>1</sup>. Heart disease, which involves the build-up of plaque in the walls of blood vessels, is the leading cause of death in Ireland<sup>2</sup>. The research found that boys with low levels of fitness had significantly more plaque in the walls of the arteries supplying the brain than the boys with high levels of fitness.

Achieving adequate physical activity and maintaining aerobic fitness in childhood and adolescents is important for optimising physical health and has been shown to be protective against the development of several diseases including obesity, type 2 diabetes, cardiovascular disease and certain cancers.

As the Aviva Health Schools' Fitness Challenge comes to a close for a 3rd year, the results and data will enable us to provide standardised fitness norms for Irish school children for the first time ever. This will ensure that teachers, parents and the children themselves will be able to assess their fitness levels in comparison to where they should be at their age.

1. Sheridan et al, Centre for Preventative Medicine. Dublin City University. Cardiorespiratory Fitness, Cardiovascular Disease Risk Factors and Subclinical Atherosclerosis in Male Adolescents. Presented at the World Federation of Athletic Training and Therapy (WFATT) World Congress 2014

2. Irish Heart Foundation. Facts on Heart Disease and Stroke. Available at: [http://www.irishheart.ie/iopen24/facts-heart-disease-stroke-t-7\\_18.html](http://www.irishheart.ie/iopen24/facts-heart-disease-stroke-t-7_18.html)

## Main Points

- A total of 10,289 students (5,261 boys and 5,028 girls) completed all three phases of the Aviva Health Schools' Fitness Challenge.
- A six week exercise intervention has proven to work with increased fitness levels recorded over the past three years:
  - › In 2013 boys completed an average of 62 shuttles and this year they completed an average of 74 shuttles, an increase of 19%.
  - › In 2013 girls completed an average of 38 shuttles and this year they completed an average of 43 shuttles, an increase of 13%.
- These results show that boys are now 53% fitter than girls compared to 45% fitter last year, meaning that the gender gap is only getting bigger.
- The current aerobic fitness norms for European adolescents are very low and do not reflect the minimum levels required for optimal health among Irish teenage girls and boys.
- It is recommended that all post-primary school girls should be able to complete a minimum of 50 shuttle runs.
- It is recommended that all post-primary school boys should be able to complete a minimum of 70 shuttle runs.
- Dublin, Donegal and Offaly were the top three participating counties in this year's challenge.

## Winning Schools

Fittest School		Class	Prize
<b>Fittest Mixed/Overall Winner</b>	<b>Boherbue Comprehensive School, Mallow, Cork</b>	<b>1.1</b>	€1,000 voucher for sports equipment
Fittest Boys	St. Patrick's College, Cavan	1.3	€500 voucher for sports equipment
Fittest Girls	Scoil Chriost Ri, Portlaoise, Laois	1.1	€500 voucher for sports equipment

Most Improved School		Class	Prize
<b>Most Improved Mixed/Overall Winner</b>	<b>Scariff Community School, Clare</b>	<b>2.1</b>	€1,000 voucher for sports equipment
Most Improved Boys	St. Macartan's College, Monaghan Town	3.4	€500 voucher for sports equipment
Most Improved Girls	Ursuline Secondary School, Tipperary	3.1	€500 voucher for sports equipment

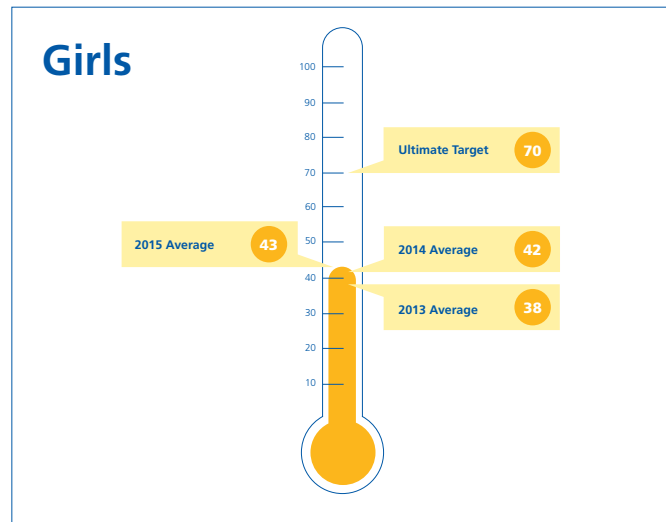
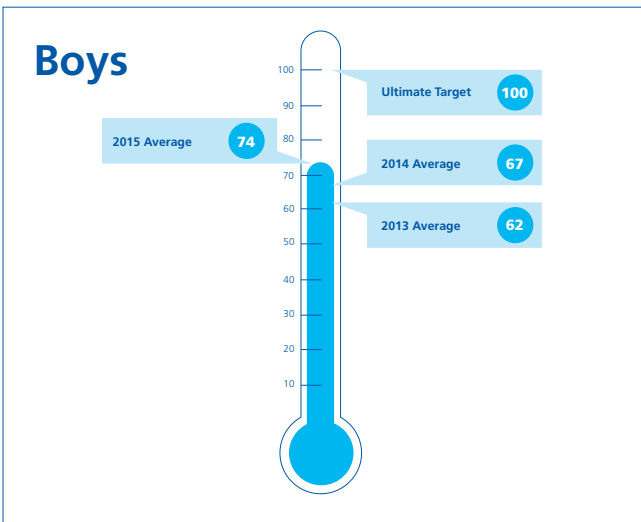
For competition terms and conditions see [www.avivahealth.ie/fitnesschallenge](http://www.avivahealth.ie/fitnesschallenge)

## Level of Participation by County

Number of schools, broken down by county, that participated in the first phase of the Challenge and completed the first bleep test.

County	Schools	Girls	Boys	Overall
Dublin	51	562	751	1,313
Donegal	16	707	448	1,155
Offaly	7	416	574	990
Tipperary	11	289	434	723
Cork	22	296	417	713
Galway	10	347	327	674
Cavan	8	395	217	612
Wexford	7	228	363	591
Limerick	11	303	209	512
Meath	4	317	134	451
Sligo	5	244	178	422
Monaghan	5	370	27	397
Louth	7	217	141	358
Waterford	5	161	185	346
Kerry	10	138	115	253
Wicklow	7	0	168	168
Leitrim	4	63	72	135
Carlow	1	58	45	103
Clare	5	49	53	102
Laois	3	23	75	98
Longford	5	41	28	69
Westmeath	9	0	59	59
Roscommon	4	37	8	45

# Shuttle Barometers

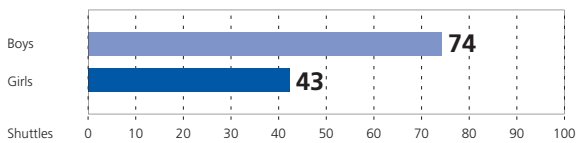


Average number of shuttles completed by Irish boys during the Aviva Health Schools' Fitness Challenge from 2013 to 2015 and ultimate target as recommended by the Centre for Preventive Medicine, DCU.

Average number of shuttles completed by Irish girls during the Aviva Health Schools' Fitness Challenge from 2013 to 2015 and ultimate target as recommended by the Centre for Preventive Medicine, DCU.

## Average number of Shuttles

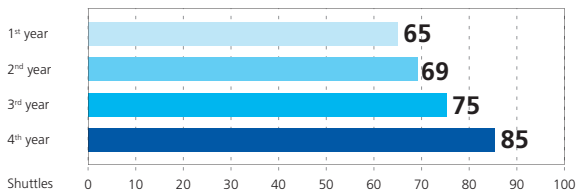
Boys vs. Girls – 53% difference



Average number of shuttles completed by boys and girls after training was completed.

## Average number of shuttles

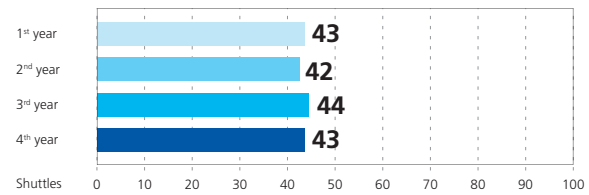
Boys in 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> year



Average number of shuttles completed by boys in 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> year after training was completed.

## Average number of shuttles

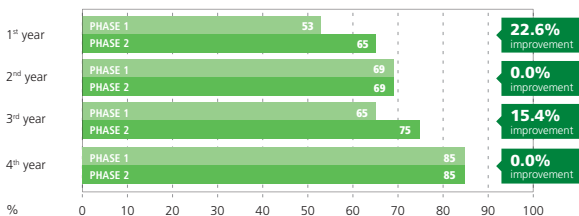
Girls in 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> year



Average number of shuttles completed by girls in 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> year after training was completed.

## Improvement Levels for Boys

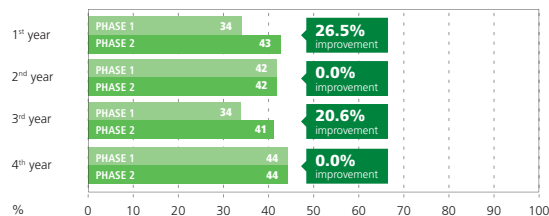
Percentage increase for 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> year boys



The percentage improvement in fitness that male students experienced after just six weeks' exercise training. This is the percentage difference between their first and last bleep test.

## Improvement Levels for Girls

Percentage increase for 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> year girls

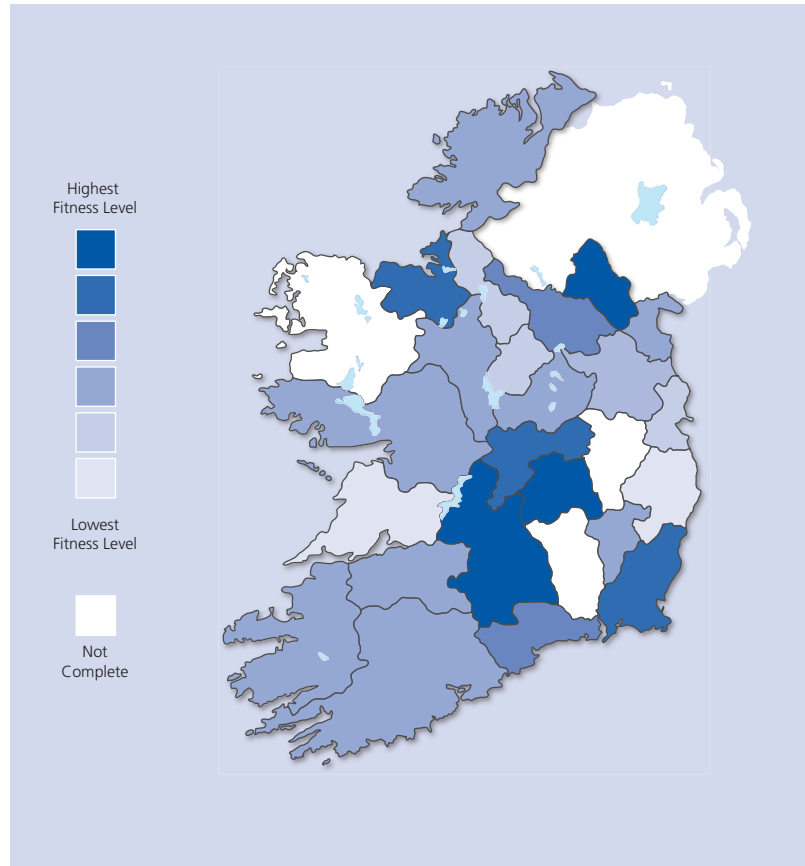


The percentage improvement in fitness that female students experienced after just six weeks' exercise training. This is the percentage difference between their first and last bleep test.

# Fitness Map of Ireland

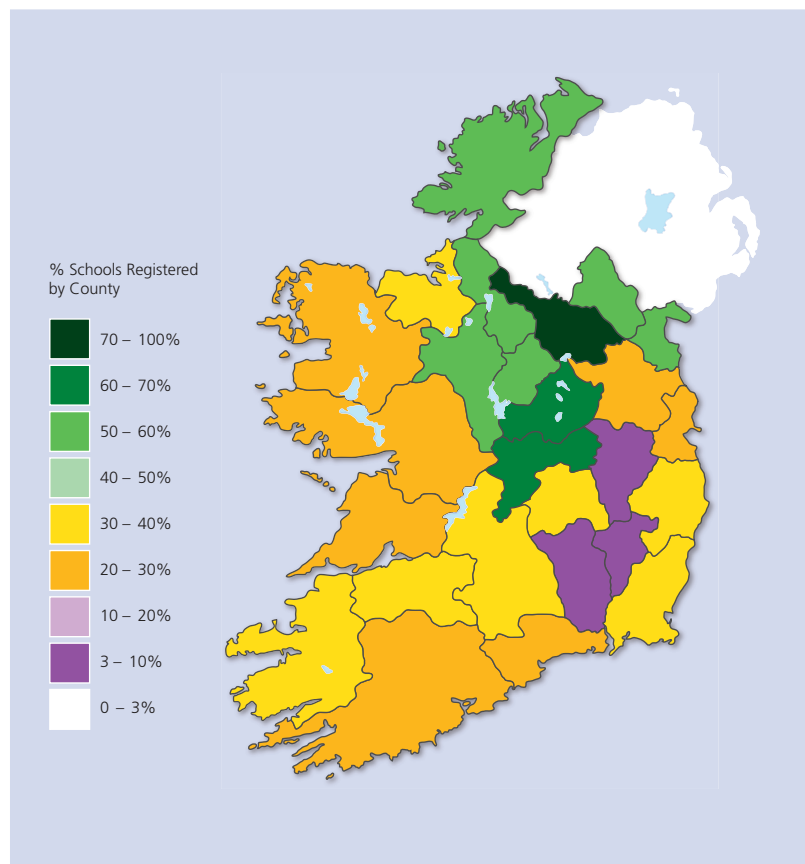
## Participation Map

This map shows the number of schools that registered for the Aviva Health Schools' Fitness Challenge.



## Fitness Map

Ranking of counties who completed all three phases of the Aviva Health Schools' Fitness Challenge.



# Summary

## Important Points

- Cardiovascular fitness is vital to our overall health
- Fit, active children are more likely to be fit, active adults
- With three years of data of over 58,000 secondary school children, there is now sufficient information to develop national standardised aerobic fitness norms for children in secondary schools
- Research has shown that regular exercise can have a positive effect on mental health and academic performance, reduce rule-breaking behaviour, improve attention span and classroom behaviour
- Physical activity can play a significant role in the enrichment of a child's social life and development of social and interaction skills
- Studies have also shown that there is a positive link between physical fitness and academic performance

## Recommendations

- The Aviva Health Schools' Fitness Challenge demonstrates that exercise intervention at a young age can improve fitness among school-going children and that fitness levels could be continually assessed to improve the overall health of the nation.
- Physical activity among school-going children needs to be viewed as a national priority if we are going to reduce the disease burden on our health service.
- There is a need to move away from our current disease-based model of health care to a health-based model.
- Children don't have to be overweight to be unfit. There are many boys and girls who are categorised as normal weight but who have very low cardiovascular fitness. Therefore, it's important that all children are made aware of their cardiovascular fitness levels and adapt their behaviour earlier in life.
- The cardiovascular health of young people can be improved through a series of measures including assessing their fitness levels at the start and end of each school year, making Physical Education compulsory, and including it as a subject on the Report Card.
- To encourage children to start good fitness behaviour early, a new Health Science curriculum could be developed at both a Junior and Senior cycle that combines education on human biology, chronic diseases, home economics and lifestyle (including physical activity, diet, smoking, alcohol, stress etc.) Educating children about what physical activity actually does physiologically (e.g. to the heart, lungs etc.) will help them understand how the body responds to exercise.
- Ideally Irish girls should be completing a minimum of **70 shuttle runs** in the bleep test.
- Ideally Irish boys should be completing a minimum of **100 shuttle runs** in the bleep test.

*Niall Moyna*

Professor Niall Moyna



## Aviva Health Schools' Fitness Challenge 2016

Aviva Health Insurance is committed to supporting the continued roll out of the Schools' Fitness Challenge to schools and classes across Ireland next year, working in close partnership with Dublin City University and the Wellness Economic Initiative Alliance.

# Participating Schools 2015

Name	County
Borris Vocational School	Carlow
Breifne College	Cavan
Royal School Cavan	Cavan
St. Patricks College	Cavan
St. Clares College	Cavan
St. Mogues College	Cavan
St. Aidans Comprehensive School	Cavan
Virginia College	Cavan
St. John Bosco Community College	Clare
Shannon Comprehensive School	Clare
Scariff Community College	Clare
Hamilton High School	Cork
Boherbue Comprehensive School	Cork
Coachford College	Cork
Cork City L.S.S	Cork
Meanscoil Phadraig Naofa	Cork
Presentation Secondary School	Cork
Beara Community School	Cork
St. Marys Secondary School	Cork
Rossa College	Cork
St. Aloysius School	Cork
St. Fanahans College	Cork
Coláiste An Chraoibhin	Cork
Scoil Mhuire	Cork
Bandon Grammar School	Cork
Gaelchol-iste Mhuire Ag	Cork
Coláiste Na Toirbhirte	Cork
Colaiste Ailigh	Donegal
Magh Ene College	Donegal
Colaiste Cholmcille	Donegal
Errigal College	Donegal
Coláiste Phobail Cholmcille	Donegal
Finn Valley College	Donegal
Rosses Community School	Donegal
Loreto Community School	Donegal
Gairm Scoil Chú Uladh	Donegal
St. Eunans College	Donegal
Dominican College	Dublin
St. Kevins College	Dublin
St. Josephs C.B.S.	Dublin
Holy Faith Secondary School	Dublin
Jesus and Mary College	Dublin
Presentation College	Dublin
St. Conleths College	Dublin
Lucan Community College	Dublin
Mercy College Coolock	Dublin
Clonkeen College	Dublin
Scoil Eoin	Dublin

Name	County
Hartstown Community School	Dublin
Saint Dominics Secondary School	Dublin
St. Marks Community School	Dublin
Ballinteer Community School	Dublin
Rosary College	Dublin
Luttrelstown Community College	Dublin
Colaiste Ghleann na hAbhann	Dublin
St. Kevins College	Dublin
Mount Sackville Secondary School	Dublin
Caritas College	Dublin
Newpark Comprehensive School	Dublin
Colaiste Eoin	Dublin
Malahide Community School	Dublin
St. Joseph Of Cluny Secondary School	Dublin
Deansrath Community College	Dublin
Dominican College	Dublin
Marino College	Dublin
St. Kilians Deutsche Schule	Dublin
Presentation College	Galway
Cholaiste An Eachreidh	Galway
Portumna Community School	Galway
St. Brigids Vocational School	Galway
St. Killian's Vocational School	Galway
Gort Community School	Galway
St. Cuans College	Galway
Coláiste Na Sceilge	Kerry
Colaiste Treasa	Kerry
Coláiste Ide	Kerry
St. Michaels College	Kerry
Tarbert Comprehensive School	Kerry
Coláiste Iosagáin	Laois
Scoil Christ RI	Laois
Vocational School	Leitrim
Villiers Secondary School	Limerick
Scoil Na Trionoide Naofa	Limerick
Glenstal Abbey School	Limerick
Carrigallen Vocational School	Limerick
Colaiste Mhichil	Limerick
Castletroy College	Limerick
Colaiste Chiaráin	Limerick
Ballymahon Vocational School	Longford
Ardscuil Phadraig	Longford
Moyne Community School	Longford
St. Olivers Community College	Louth
Ardee Community School	Louth
Ballymakenny College	Louth
Drogheda Grammar School	Louth
Scoil Muire Agus Padraig	Mayo

Name	County
St. Patricks Classical School	Meath
Athboy Community School	Meath
Monaghan Collegiate School	Monaghan
Inver College	Monaghan
Largy College	Monaghan
St. Macartans College	Monaghan
Oaklands Community College	Offaly
Tullamore College	Offaly
Sacred Heart Secondary School	Offaly
Ard Scoil Chiarain Naofa	Offaly
St. Brendans Community School	Offaly
Killina Presentation Secondary School	Offaly
Colaiste Na Sionna	Offaly
Abbey Community College	Roscommon
Scoil Mhuire	Roscommon
C.B.S. Roscommon	Roscommon
St. Nathys College	Roscommon
Coola Post-Primary School	Sligo
Grange Vocational School	Sligo
Sligo Grammar School	Sligo
Cashel Community School	Tipperary
The Abbey School	Tipperary
Ursuline Secondary School	Tipperary
St. Marys Secondary School	Tipperary
St. Alibes School	Tipperary
Our Ladys Secondary School	Tipperary
Patrician Presentation	Tipperary
Nenagh Vocational School	Tipperary
De La Salle College	Waterford
St. Pauls Community College	Waterford
Blackwater Community School	Waterford
St. Angelas Ursuline Convent	Waterford
St. Augustines College	Waterford
Wilson's Hospital School	Westmeath
Athlone Community College	Westmeath
Our Ladys Bower	Westmeath
Mercy Secondary School	Westmeath
Presentation Secondary School	Wexford
Vocational College Bunclody	Wexford
F.C.J. Secondary School	Wexford
Bridgetown Vocational College	Wexford
Gorey Community School	Wexford
Coláiste Raithin	Wicklow
Colaiste Chill Mhantain	Wicklow
Loreto Secondary School	Wicklow
Coláiste Bhríde Carnew	Wicklow

