START
Schools Teaching Awareness of Randomised Trials

Health Research Board
TMRN
Trials Methodology Research Network



START Competition

Planning Guide

HRB Health Research Board

STARTCOMPETITION.COM

Taighde Éireann Research Ireland

Ollscoil na Gaillimhe University of Galway

University College Dublin
Ireland's Global University

UCC
University College Cork, Ireland
Coláiste na hOllscoile Corcaigh

University of Limerick
Ollscoil Luimnigh

Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin

Table of contents

Curriculum in Action 3

Step by Step Guide 4

Submission Guidelines 12

Appendix 1: Trial Registration Form 15

Appendix 2: KITE Framework 17

Appendix 3: Suggested Timeline 21

Appendix 4: Choosing a question for your trial 22

Appendix 5: Trial Planning Worksheet 24

Appendix 6: Sample Consent Form 25

Contact us 27

START

Schools Teaching Awareness of Randomised Trials

Curriculum in Action

An engaging project that brings curriculum subjects to life!

Target audience:
4th to 6th class Primary

No Cost



Maths

Students analyse data and apply critical thinking when comparing trial results.



Science

Hands-on trials develop skills in observation, reasoning, and scientific inquiry.



Language

Team discussions help students communicate ideas clearly and effectively.



SPHE

Projects on health and personal growth build self-esteem and responsibility.



Visual Arts

Creative presentation of findings nurtures confidence and artistic expression.



PE

Physical activity trials connect movement to health knowledge.

To find out more on how START support your teaching goals, visit **https://startcompetition.com/school-curriculum/**

Step by Step Guide

Below is our recommended guide for completing your trial. Each step includes:

- A suggested difficulty rating (1-3)
- An estimated time frame

Remember, these are just guidelines! Some trials are simpler than others, so you can adjust the time you spend on each step to suit your class. The most important thing is that students understand and enjoy the scientific process.

Watch the video, "START Competition, step-by-step", on our resource page, for a more visual and engaging way to explore the step-by-step guide.

Step 1
Register your trial

2 min DIFFICULTY 1

Before they start, all randomised trials are registered on a public website so that everyone knows that the trial is going to take place.

Register your trial in just a few minutes on our website (www.startcompetition.com) by completing the trial registration form with details such as your school's name and the number of children involved.

You will then receive log-in details to access the project submission page.

Step 2
Decide on your trial question

2-3 hours DIFFICULTY 2

Selecting the right question for your project is one of the most exciting but challenging steps in the START Competition.

Fill out the **KITE Framework** (appendix 2 of this lesson plan) to ensure your question can be answered using a randomised trial, and refer to our handy guide, Choosing a Question for Your Trial, for further inspiration (Appendix 3 of this lesson plan).

Language
classroom discussion and debate, framing clear questions.

SPHE
practising active listening, respecting each other's opinions, reaching agreement as a group.

Watch the video The KITE Framework, choose Your Trial Question and Select your Outcomes on our resource page.

Step 3
Select your outcomes

2 hours

DIFFICULTY 2

Now, you have an exciting question for your trial—but how will you answer it, and how will you measure your trial results?

If you have used the **KITE Framework** to help decide on your question, you should already have an idea of the outcome you're looking for.

Top tip:

Choose outcomes that are easy to measure. Why not ask family members for ideas on how to measure your outcomes?

Maths

identifying measurable outcomes (time, distance, test scores...).

Science

linking curiosity to testable questions (e.g. "Does positive encouragement affect running speed?").



Watch the video "Collect consent and blind your trial" on our resource page, to see how we can share just enough information about the study, while keeping some parts secret to make sure the results are fair.

Step 4
Collect consent

1 hour

DIFFICULTY 1

Before starting your trial, you need to get permission from everyone who will participate. You can use the consent form p22 of this guide or create your own.

Who can participate? Maybe consider another class, teachers, or family members.

For good consent, you should:

- Explain what your trial is about in simple terms
- Tell participants what they'll be doing
- Explain benefits (they might learn something new)
- Mention any possible disadvantages (like being in the group that they didn't want)
- Make it clear they don't have to join if they don't want to
- Explain they can stop participating at any time
- Answer any questions they have

And importantly, thank them for their help!

Language
practising explanation in child-friendly terms.

SPHE
empathy, fairness, and respect for others' choices.

NB: Parental or guardian consent is required for any photos or recordings of students used in the submission process.



Step 5
Divide your participants into groups

1-2 hours DIFFICULTY 1

Now you need to divide your trial participants into groups: a control group and one or more test groups. This is called randomisation.

What is randomisation?

Watch the video "randomisation" on our resource page!

Randomisation is the process of assigning participants to groups by chance, like flipping a coin or drawing names from a hat. This is **crucial** because it:

- Creates fair groups that are similar in all ways except for the thing (i.e., the 'intervention') being tested
- Reduces bias (that's when results are influenced by things (factors) other than what you're testing)
- Makes your results more reliable and scientific.

How to randomise:

1. Ask someone not involved in the project (another teacher, parent, or student from a different class) to help
2. Use methods like:
   a) Drawing names from a hat
   b) Flipping a coin (heads = test group, tails = control)
   c) Using a computer based random number generator (such as https://www.randomizer.org/)

The test groups will do what you are investigating (e.g., use coloured paper for homework), while the control group continues as normal (e.g., doing homework on their usual paper). You'll collect information from both groups to compare results.

Maths
applying probability.

Science
ensuring fair testing through equal groups.

SPHE
learning about fairness and inclusion.

Watch the video "Collect consent and blind your trial" on our resource page to learn more about this step.

Step 6

Make it a secret (if you can)

1 hour

DIFFICULTY 3

Many randomised trials use something called 'blinding'

What is blinding?

Blinding means keeping some information secret from participants so they don't change their behaviour in ways that might affect your results. When participants don't know which group they're in, they're less likely to act differently just because of that knowledge.

Why is blinding important?

Imagine you're testing whether a special breathing exercise helps running speed:

- If participants know they're in the "special breathing" group, they might try extra hard
- If they know they're in the control group, they might feel disappointed and not try as much
- Either way, your results would be affected by their feelings, not just the breathing exercise

How to create a blinded trial:

1. Don't tell participants which group they're in
2. Have someone else assign groups so even you don't know who's in which group

Example:

For a trial testing if coloured paper helps with homework, you could tell participants "We're studying different homework conditions" without mentioning colour specifically.

If blinding isn't possible for your trial, that's okay! Just explain why in your report. Being honest about limitations is part of being a good scientist.

Language

practising how to keep instructions neutral.

SPHE

recognising bias and the importance of fairness.



Step 7
Conduct your study

1-2 weeks  DIFFICULTY 2

Time to start your trial! Here's how to run it successfully:

Getting started:

- Give clear instructions to all participants (consider a class meeting or written instructions)
- Make sure everyone understands what they need to do and when
- Set up a schedule for your trial (How many days? What times?)

During the trial:

- Collect your data consistently (use the same methods each time)
- Keep a trial diary to record any problems or surprises
- Stay organised - use charts, spreadsheets or notebooks to track your information

Important reminders:

- Take notes about other events/things that might affect your results (school events, holidays, weather)
- Check-in regularly with participants to make sure they're following instructions
- If something unexpected happens, don't panic! Record the issue and continue

Top tip:

Create a simple checklist of daily tasks to make sure nothing gets forgotten during your busy school days.



PE
trials on stretching, balance, speed, or stamina.



SPHE
focus and wellbeing trials (e.g. coloured paper, mindful breathing).



Maths
measuring, counting, and recording data accurately.



Art
documenting the trial with drawings or photos.



Language
keeping diaries or notes of what happens.

Step 8
Report your findings

1 week  DIFFICULTY 1

Time to share what you discovered!

Organising your results:

- Gather all your measurements and observations
- Create simple charts or graphs to show your data clearly
- Look for patterns - did your intervention make a difference?
- Remember: Finding "no difference" is just as important a result as finding a big difference!

Telling your story:

- Describe what you did in each step of your trial
- Explain what worked well and what challenges you faced
- Share what surprised you or what you learned
- Include photos, drawings or videos of your trial in action

Creative reporting options:

- Written report with pictures
- Video presentation or mini-documentary… in the past we've even had a drama!
- Poster or infographic… we've had scrapbooks!
- Podcast or audio recording
- Digital presentation (PowerPoint or Google Slides)

Language
writing conclusions, presenting orally to peers.

Maths
creating graphs, tables, and charts to display data. Reflecting on accuracy and methods of measurement.

Art
posters, models, comics, or visual displays of results.

ICT
designing digital infographics, videos, or slideshows.

Science
explaining results and linking back to the question.

SPHE
reflecting on teamwork, fairness, and inclusion.

Don't forget to share your findings with your participants, classmates, and families!

NB: Make sure to have a look at the submission guidelines below for more information on format and content requirements.

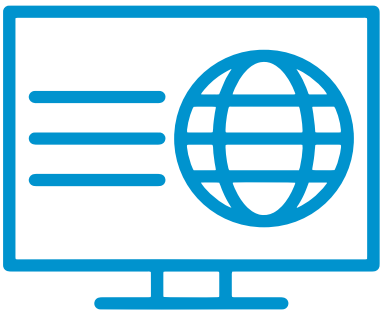


Submission Guidelines

Format

Be creative with your submission! We accept many formats:

Digital formats:



- Videos (3-4 minutes long)
- Podcasts or audio recordings
- PowerPoint or Google Slides presentations
- PDF documents
- Digital posters or infographics
- Websites or Google Sites

Paper projects:

- If you created a physical project (poster, scrapbook, artwork), please scan or photograph it clearly
- Upload the digital images through our website
- Keep your original work safe - if shortlisted, you can bring it to the awards ceremony!

Important size limits:

- **Videos/audio:** 3-4 minutes maximum
- **Written reports:** 2,000 words maximum
- **File uploads:** Check the website for current size limits

Tips

- Please do not use copyrighted material without permission (e.g., TV clips, movies, online videos, music, sound recordings)
- Be mindful of sound quality when recording outdoors
- If external technical help was used, please inform us so we can fairly judge entries

To Upload Your Project

Upload your project by logging into https://startcompetition.com/member-login/ and following the instructions step by step.

What Our Judges Look For

What impresses our judges the most isn't fancy presentations - it's how well you followed the scientific process! Here's what they'll be looking for:

1. Scientific thinking:

- Did you follow all the steps of the trial process properly, including randomisation?
- Did you understand why each step matters?
- Did you solve problems that came up during your trial?

2. Clear explanation:

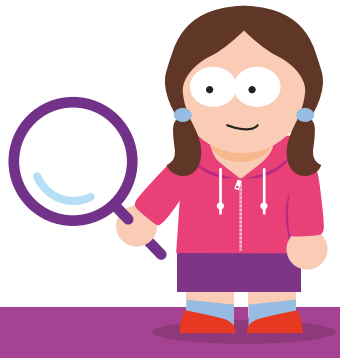
- Can anyone understand your findings, even people who don't know much about science?
- Did you use simple language and helpful visuals?
- Did you explain things in a logical order?

3. Educational value:

- Does your project teach something useful?
- Could other schools learn from what you discovered?
- Did you connect your findings to real-world situations?

4. Honest reflection:

- Did you discuss what worked well AND what didn't?
- Did you suggest how the trial could be improved?
- Did you share what surprised you or what you learned along the way?



What to Include in Each Step

Step 1: Registering Your Trial

Show evidence that you registered your trial. You could include a screenshot of your registration confirmation or your trial registration number.

Step 2: Deciding Your Trial Question

Explain how your class chose this particular question. Show us your brainstorming process! Include photos of mind maps, voting charts, or notes from class discussions that helped you decide.

Step 3: Select Your Outcomes

Clearly state what you measured and how you measured it. For example: "We measured concentration by counting how many math problems students could solve in 10 minutes" or "We measured memory by having students recall items from a list."

Step 4: Participants and Consent

Tell us who participated in your trial (which class, how many students, what ages) and show us your consent process. Include a sample of your consent form (with personal information removed).

Step 5: Randomisation
(How You Divided Your Participants into Groups)

Show exactly how you randomly assigned people to groups. Did you use a hat with names? A coin flip? A computer program? Include photos or drawings of your randomisation process in action. Explain why random assignment was important for making your trial fair.

Step 6: Blinding (Keeping it a Secret)

Tell us if your trial was blinded (participants didn't know which group they were in) or not blinded. If it was blinded, explain how you kept it secret. If it wasn't blinded, explain why that wasn't possible for your particular trial. Remember: not all trials can be blinded, and that's okay!

Step 7: Conducting Your Study

Take us through your trial day-by-day. Show the action with photos or drawings of your trial in progress. Include any data collection sheets you used, your schedule, and notes about any challenges you faced and how you solved them.

Step 8: Reporting Your Findings

Present your results clearly using charts, graphs, or tables that show what you found. Explain what your findings mean in simple language. Remember that "no difference" results are just as important as finding big differences! Include your class's reaction to the results - were you surprised? Did you learn something unexpected?

START
Schools Teaching Awareness of Randomised Trials

START COMPETITION
TRIAL REGISTRATION FORM
FOR TEACHERS

Trial Registration Form

School Information:

School name:

School roll number:

(5 letters and a number,e.g., 12345A)

School address:

Principal's name:

Teacher Information:

Lead teacher name:

Teacher's email address:

Mobile phone number:

Trial Information:

Participating class(es):
(e.g., 5th class, 6th class)

Number of students participating:

Tentative trial topic (if known):

(you can change this later)

Estimated start date: D D M M Y Y

Additional Information:

Howdidyouheararoutthe START competition?

- ○ Social media (Facebook, X, Instagram)
- ○ START website
- ○ Flyers received in our school
- ○ Email
- ○ Word of mouth (friend, colleague, etc.)
- ○ Meet the Scientist webinar series
- ○ Education Support Centre (ESCI)
- ○ INTO Education Conference
- ○ InTouch Magazine
- ○ IPPN Principal Conference
- ○ Galway Science and Technology Festival
- ○ BT Young Scientist Primary Science Fair
- ○ IPPN School supplier magazine
- ○ Principal or teacher network
- ○ Other. Please indicate further:

I have participated in the START competition before ○ Yes ○ No

I am happy to receive information about an evaluation of the START initiative ○ Yes ○ No

Consent:

- ○ On behalf of the School, I confirm that the parents of each student involved in the START Competition have consented to their child's participation and have been informed that any material submitted may be used by the HRB-TMRN for promotional, educational or reporting purposes.

What happens next?

After submitting this form, you will receive a confirmation email with resources to get started, how to submit your project, and the deadline.

Fill this form online at **www.startcompetition.com** or email to **startcompetition@universityofgalway.ie**

Ollscoil na Gaillimhe University of Galway · University College Dublin Ireland's Global University · UCC University College Cork, Ireland Coláiste na hOllscoile Corcaigh · University of Limerick Ollscoil Luimnigh · Trinity College Dublin Coláiste na Tríonóide, Baile Átha Cliath The University of Dublin

START Competition © 2016 by Prof Declan Devane & Dr Sandra Galvin on behalf of Health Research Board - Trials Methodology Research Network Ireland is licensed under Attribution-NonCommercial-ShareAlike 4.0 International. To view a copy of this license, visit http://creativecommons.org/licenses/by-nc-sa/4.0/

Appendix 2

KITE Framework:

A Guide to Finding a Research Question for Your Randomised Trial

The KITE Framework is a simple tool to help you create research questions that can be tested with a randomised trial. Just like a kite needs four parts to fly well, a good research question needs four key elements to work properly!

KITE: Four Key Elements of a Research Question

Element	What It Means	Questions to Ask
K **Kids** (or Key Group)	Who is taking part in the trial?	Who will be a good fit to test our project? (e.g., classmates, school, friends, family)
I **Intervention** (or Idea to Test)	What change or new thing will we try?	What are we testing? (e.g., different ways to study, a new type of exercise, a healthy snack)
T **Testing and Comparison**	What is the difference between the groups?	How will we organise our groups for comparison? Will one group do something different? (e.g., one drinks water, the other drinks juice)
E **Evidence of change**	What do you think will happen?	Think of an outcome as the answer to: 'What might change if our idea works?' 'If our intervention works, what exactly will improve or change?' 'Can we actually observe or count this in some way?' 'What tools, tests, or methods will give us clear numbers or observations?'

Watch the video "The KITE Framework, choose Your Trial Question and Select your Outcomes" on our resource page.

Appendix 2

How to use the KITE Framework

- Choose a Topic: Pick something interesting, that the class is curious about! (e.g., learning, sports, sleep, food).
- Use the KITE table to build a testable question.
- Turn it into a clear research question!

Example: Does stretching before running help children run faster compared to not stretching before running?

K: Children in the class
I: Stretching before running
T: One group stretches, the other doesn't
E: Measure running time



Appendix 2

Example using the KITE Framework

Research Question	K (Kids/Key Group)	I (Intervention/ idea to test)	T (Testing and Comprison)	E (Evidence of change)
Does chewing sugar-free gum help children remember vocabulary ? (Compared to not chewing gum)	4th class students	Chewing sugar-free gum while studying vocabulary	Compare with students studying without gum	Memory test scores (Number of words remembered after 30 minutes)
Do 3-minute brain breaks improve focus? (Compared to not taking breaks)	4th, 5th and 6th class students	Taking 3-minute movement breaks every 20 minutes	Compare with students working continuously	Attention scores (teacher and/ or student reported attention (1-5 scale)
Does eating fruit at breakfast improve performance in maths? (Compared to not eating fruit at breakfast)	6th class students	Eating fruit at breakfast before school	Compare with students who do not eat fruit at breakfast	Maths test scores
Does playing math games improve times tables skills?	3rd class students	Playing 15 minutes of multiplication games daily	Compare with students doing traditional practice	Speed and accuracy on weekly times tables tests

Appendix 2

Fill in your own KITE Framework

(you can create more than one to help you and your students decide which to run with!)

				Research Question
				K (Kids/Key Group)
				I (Intervention/ idea to test)
				T (testing and comparison)
				E (Evidence of change)

Your START Competition Timeline

Helping you plan your class project step by step

We recommend starting your trial from January onwards using our planning timeline, but schools are welcome to begin earlier if it suits their schedule better. The competition opens in **November**, so you can register and start whenever works best for your class.

November
Registrations open (Science Week)

January:
Planning your Trial

- Fill out the **KITE Framework**
- Decide on your **trial question**
- Choose your **participants**
- Select your **outcomes** (evidence of change).
  What do you think will happen, and how will you measure it?

February:
Running your Trial

- Send out and collect **consent forms**
  (allow approx. 1 week for this step)
- **Randomise** your participants into groups
- **Run your trial**
  (keep it simple and stick to your plan!)

March:
Reporting your Trial

- **Report your findings**
  (allow approx. 2-3 weeks for this stage)
- **Submit your project** via the START website

Submission Deadline: March

Tip: Take photos or short videos of your journey and tag us on social media.
We'd love to share your progress!

Ask → Investigate → Discover

Appendix 4

Choosing the right question for your class

Choosing the right question for your randomised trial is both exciting and challenging.

These award-winning questions from past competitions might inspire your class:

Physical activity questions:

- Does 10 minutes of ambulatory activity affect the speed and mood in 10-year-olds?
- Does having a physical goal to work towards increase participation in fitness activities and therefore improve fitness levels?

Learning methods questions:

- Do children learn better from a teacher or from each other?
- Do extra maths games improve test scores?
- Can interactive spelling games improve spelling test results?
- Does writing in coloured pen when learning spellings and tables improve learning and concentration?
- Can cartoons, comics, and visual aids help children achieve better results in their tests?

Attention and focus questions:

- Do you learn more when working in groups or doing independent work?
- Does being on a device before bed affect your sleep?
- Music: Our memory's friend or foe?
- Does watching TV while doing written homework cause you to lose concentration?

Wellbeing questions:

- Does homework make children feel stressed?

These trials are all available on START Competition • Resources.

By exploring topics that resonate with their curiosity, children are more likely to feel engaged in the design and conduct of their trials.

Appendix 4

How Other Schools Selected Their Questions

Looking for a process to help your class choose a question? Here's how previous winning schools did it:

Scoil Mobhí, Glasnevin, Dublin (2nd place winners in 2017):

"It was difficult selecting one single trial question. Everybody in the class had different ideas and opinions. We made a mind map on the whiteboard and gave each pupil in our class a chance to give their idea for the trial. We then narrowed it down with a vote."

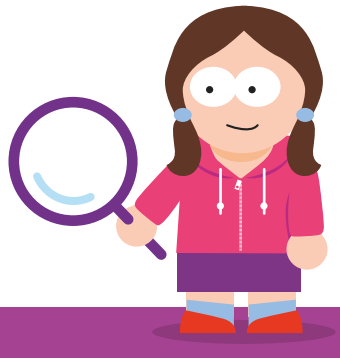
St. Joseph's National School, Kinvara (1st place winner in 2018):

"To choose a question we worked in small groups and posted our ideas on a Padlet. The Padlet let us all collaborate and write down all of our ideas so that they would all be in the same place. We discussed our ideas in our group and then as a whole class we picked a few of the best ideas from the Padlet and then decided whether it was possible to test them in school or not. There were a lot of good ideas, but we narrowed it down to around 15 ideas. Then our teacher made a Google Slide presentation with all of the options so that we could look at all of them and discuss them."

Gaelscoil Eiscir Riada, Tullamore (2nd place winner in 2019):

"Our first step was to brainstorm questions that we would be interested in investigating. We created a Jamboard to put all our ideas in one place. Next, we organised our ideas using colour codes:

- In green were ideas we thought could work well.
- In yellow were ideas that were interesting but we weren't sure about; we might run into some problems.
- In Pink were ideas that we had to rule out due to time restraints or due to Covid restrictions that were in place at the time."



Appendix 5

Trial Planning Worksheet

Teacher instructions: Copy this worksheet for each small group. Have students complete it together to plan their trial before starting.

Problem

(e.g. students lose concentration in class)

Question

(e.g. does doing 5 minutes of jumping jacks before afternoon classes improve student concentration compared to sitting quietly?)

Materials Needed

(e.g. stopwatch)

START Competition © 2016 by Prof Declan Devane & Dr Sandra Galvin on behalf of Health Research Board - Trials Methodology Research Network Ireland is licensed under Attribution-NonCommercial-ShareAlike 4.0 International. To view a copy of this license, visit http://creativecommons.org/licenses/by-nc-sa/4.0/

Appendix 6

Consent Form

Students Teaching Awareness of Randomised Trials (START)

Welcome to the [Insert Trial Name]

Please read the information below carefully before deciding whether to take part.

This project is about [Explain your trial in a short paragraph]

1. What our trial is about

[Write 2-3 simple sentences explaining your trial without revealing which part you're testing]

2. What will happen

- List exactly what participants will do
- Include how long it will take
- Include when and where it will happen

3. Benefits of taking part:

- List how participants might benefit, such as learning something new
- Consider mentioning that they're helping with scientific discovery

4. Possible disadvantages:

- Be honest about any disadvantages, such as the time it will take or possibly being put in a group they don't want

5. Your choice:

- You don't have to take part if you don't want to
- No one will be upset if you decide not to join

Appendix 6

6. Stopping:

- You can stop taking part at any time
- You don't need to give a reason
- There are no consequences for stopping

7. Questions:

- Before you decide to take part, please ask us any questions you may have
- You can also ask questions at any time during the trial
- Contact [name] if you have questions later

Tick the box if you understand the points below. If you do not understand, ask for more information.

I understand what this project is trying to do ☐

I know I might be placed in a group I do not want ☐

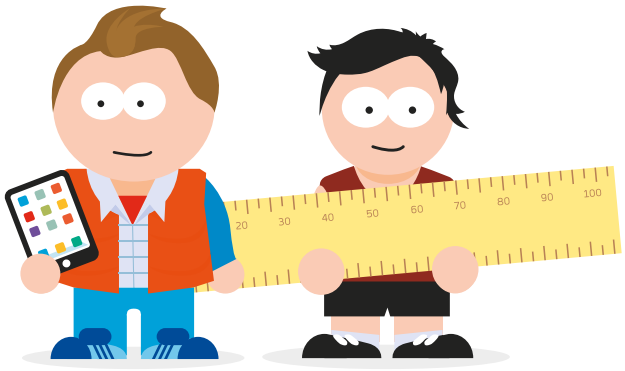
I understand that I can stop taking part in this project at any time ☐

I am happy to take part in this project ☐

Please sign your name here:

Date:

D D M M Y Y



START Competition © 2016 by Prof Declan Devane & Dr Sandra Galvin on behalf of Health Research Board - Trials Methodology Research Network Ireland is licensed under Attribution-NonCommercial-ShareAlike 4.0 International. To view a copy of this license, visit http://creativecommons.org/licenses/by-nc-sa/4.0/

Contact us!

startcompetition@universityofgalway.ie

Health Research Board – Trials Methodology
Research Network (HRB-TMRN)
School of Nursing & Midwifery,
University of Galway, Ireland

Health Research Board

STARTCOMPETITION.COM

Taighde Éireann Research Ireland

Ollscoil na Gaillimhe University of Galway

University College Dublin Ireland's Global University

UCC University College Cork, Ireland Coláiste na hOllscoile Corcaigh

University of Limerick Ollscoil Luimnigh

Trinity College Dublin Coláiste na Tríonóide, Baile Átha Cliath The University of Dublin