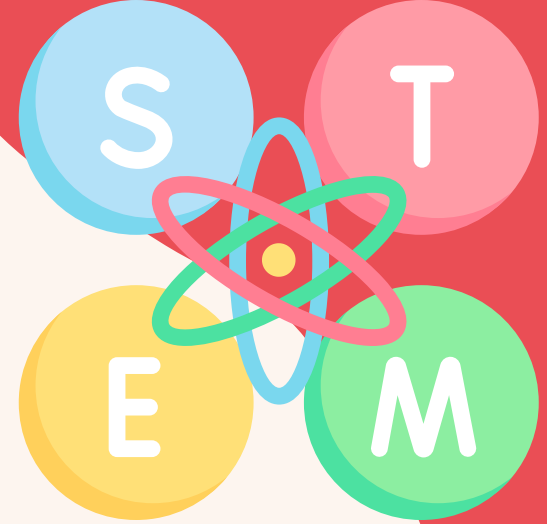




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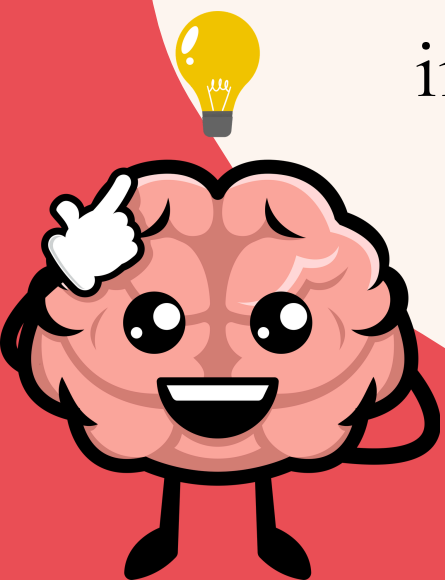
**BALLAGHADERREEN,
CO. ROSCOMMON**

WELCOME TO OUR START PROJECT



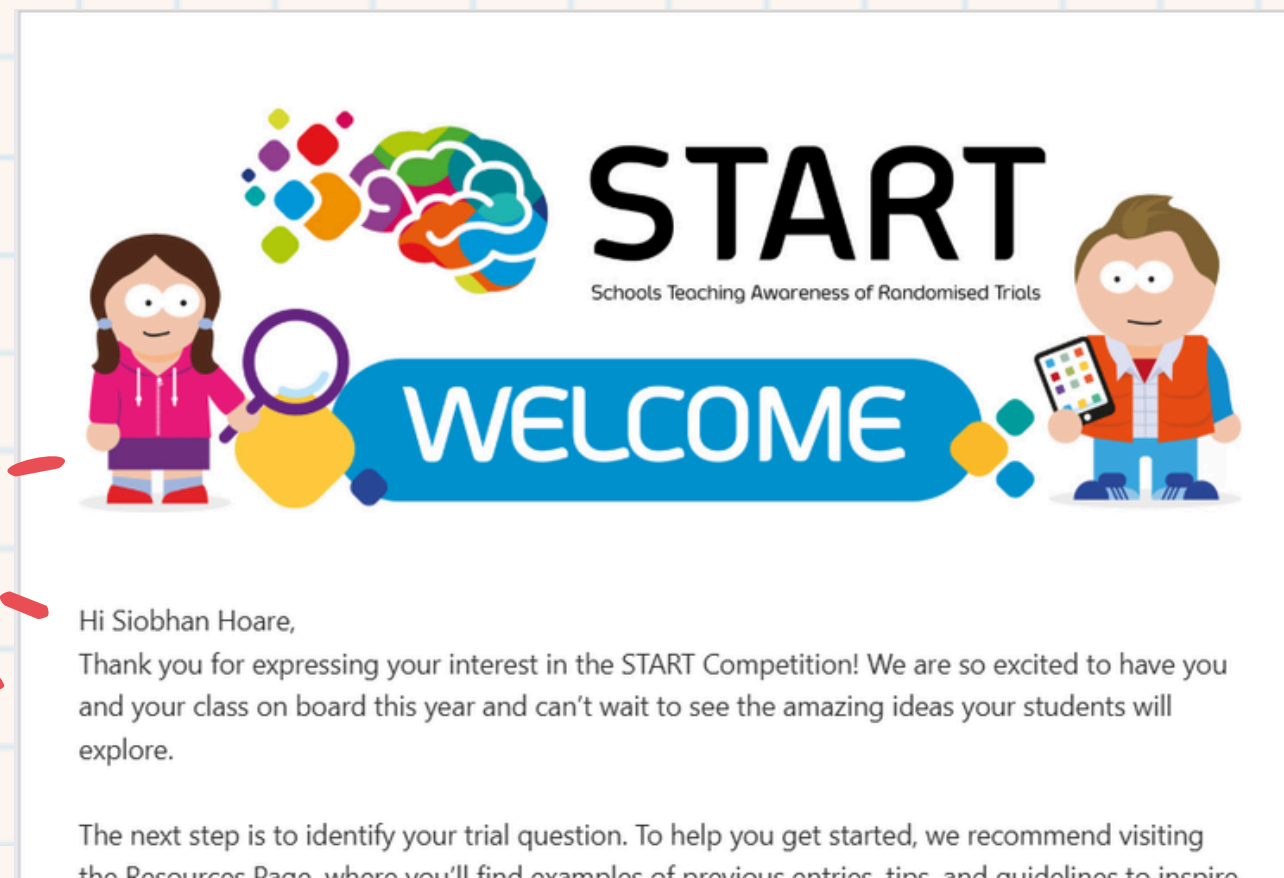
We embarked on our START journey without any expectations. As we are a DEIS Band 1 School children in our school face additional challenges to learning outside of the classroom. However from observations throughout the START project there was increased motivation and engagement resulting from the valuable and positive learning opportunities for children. The child led, playful and active approach to learning gave rise to meaningful discussions between peers. It was a pleasure to watch the learning unfold while creating and carrying out the randomised trial. This project enabled our 5th class children to be active agents in their own learning and show each other the importance of teamwork to achieve a common goal.

SIOBHÁN HOARE



Step 1: Register for START Competition

- We registered for the START competition online.
- We had not yet chosen our trial question so it was time to get to work!





What is a
randomised
trial?

Step 2: Learn about randomised trials

- We watched the START competition's video about randomised trials. We listened to James Lind's randomised controlled trial investigating what foods help prevent scurvy.
- We discussed what we heard and then watched the video again!
- In groups we then explored what makes a randomised trial.

Step 2: Learn about randomised trials

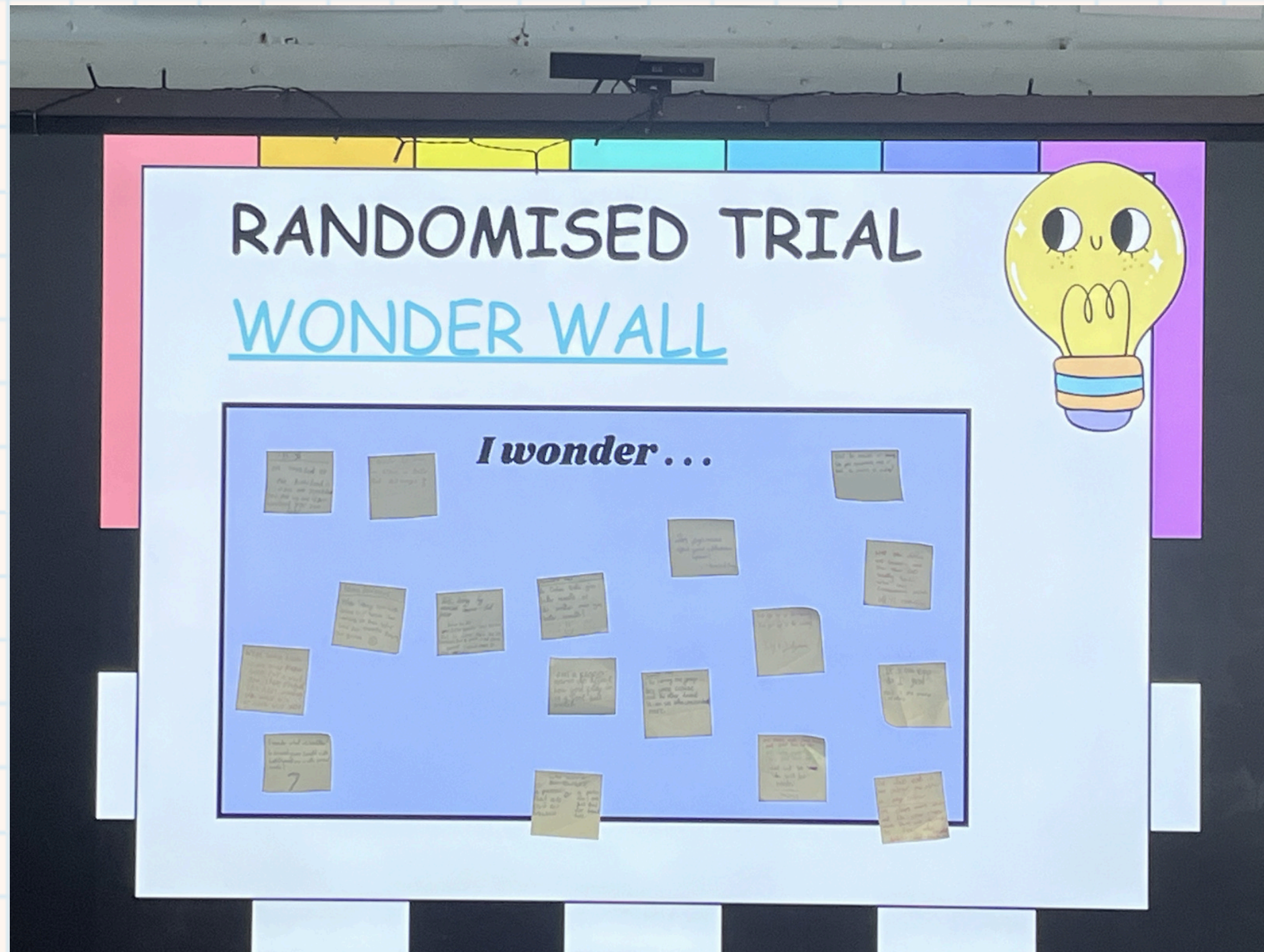
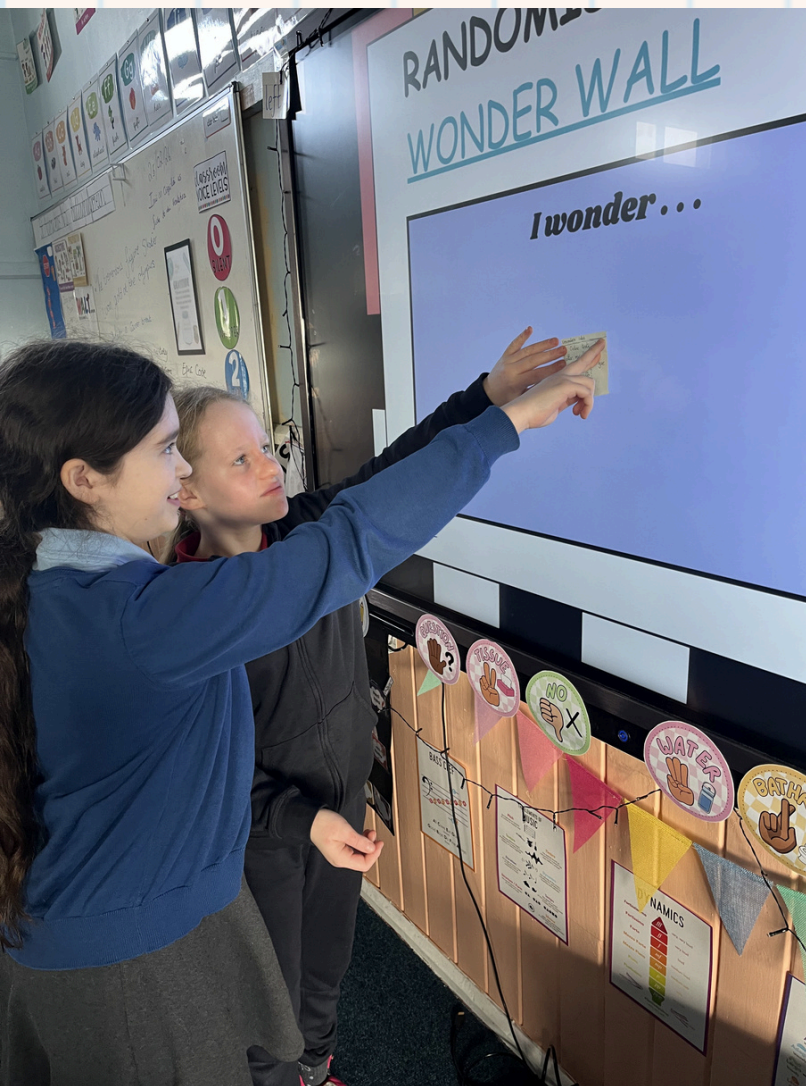
DO YOU
KNOW



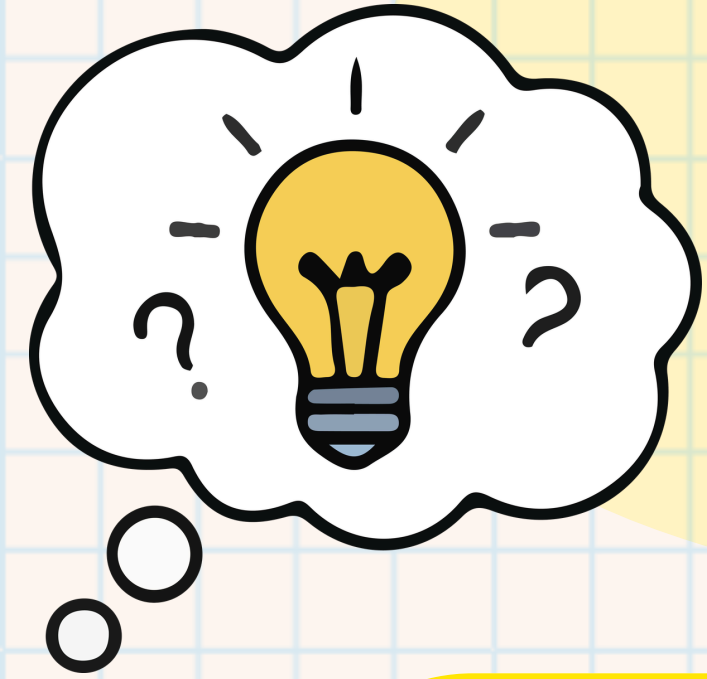
We learned that a randomised trial is:

1. Investigating a question that can be tested.
2. Creating groups to test your question - one group does the activity and one doesn't.
3. Keep the groups a secret so there is no bias.
4. Complete the tests in the same way - fair test (only change what you are testing) e.g. give the same questions on a maths test but one group does them online and another group does the test on paper.
5. Compare your results.

Step 3: Generate Ideas for our randomised trial



Step 3: Generate Ideas for our randomised trial



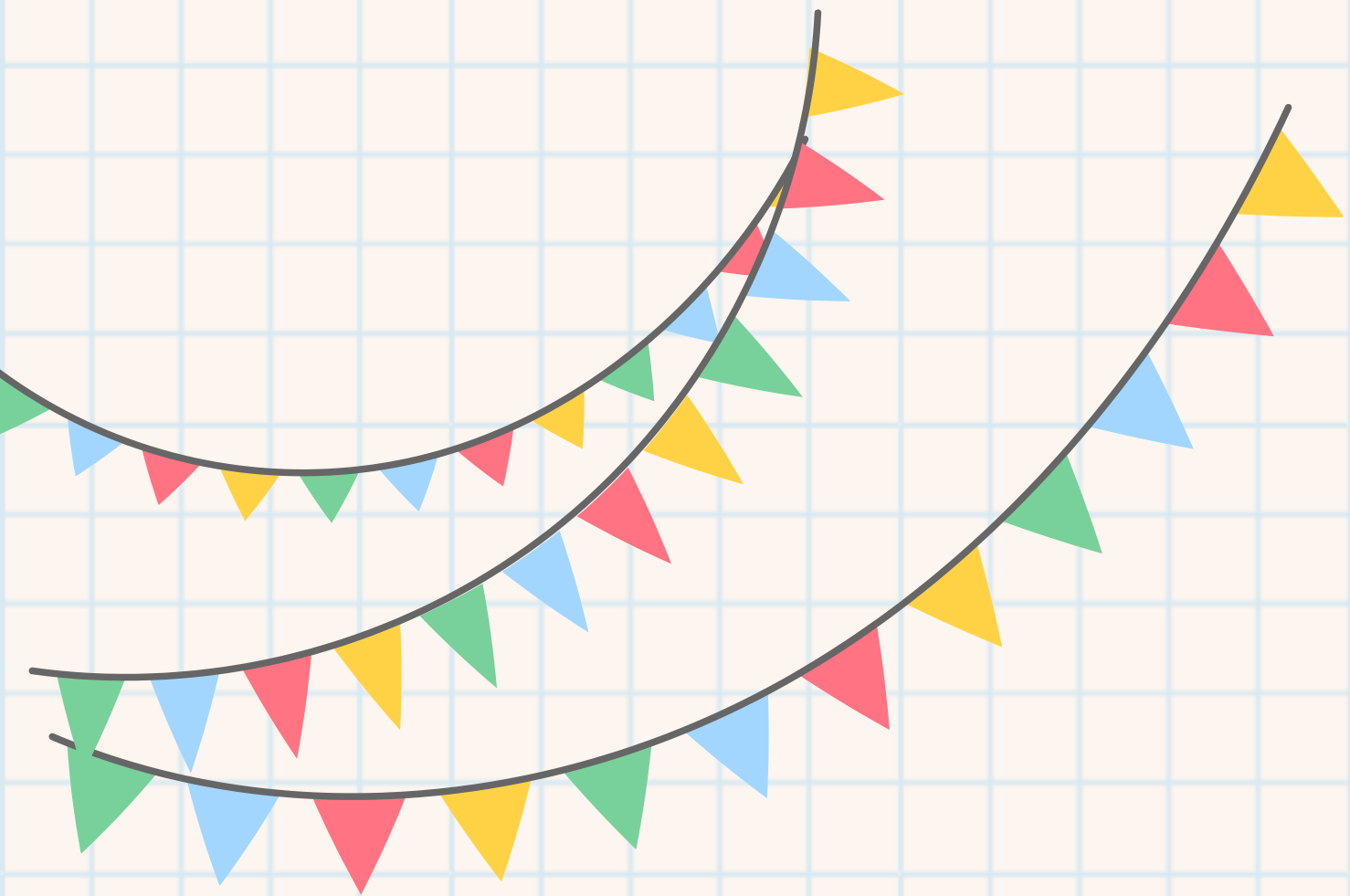
- In our groups we talked about what we would like to test.
- We created a question and put it on our wonder wall.
- As a class we then picked the top 5 to vote on!

Our Top 5 Questions

1. Does learning using online tutorials/ videos or in person have a better effect?
2. Does online testing or written testing affect results?
3. Does completing warm ups increase athletic performance?
4. Does completing run for life (school run initiative) in the morning or afternoon have an affect on time/speed?
5. Does eating certain types of food affect athletic performance e.g carbs or sugary foods?

Choosing our questions

- As a class we chose a question that **ALL** of us could participate in.
- As some of us are doing Ramadam questions relating to the effect of food was not possible. Additionally, we did not choose questions relating to concentration as some of us were fasting and this already affects our concentration.



OUR QUESTION

IS.....

**“Do warm-ups
affect athletic
performance in
children?”**




Step 4 : Selecting Outcomes

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?'


START The KITE Framework, Choose your trial question and select your outcomes Copy link






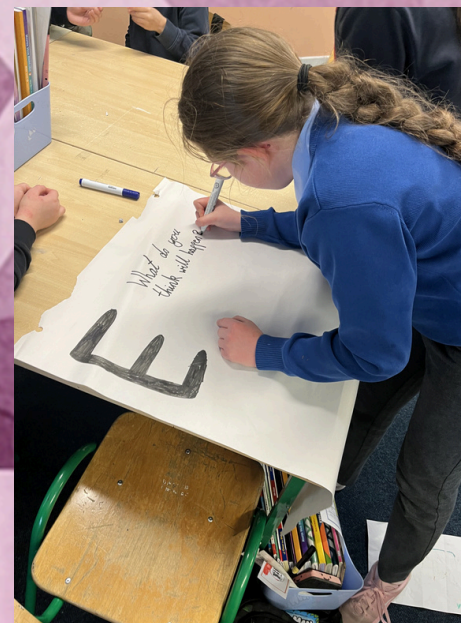
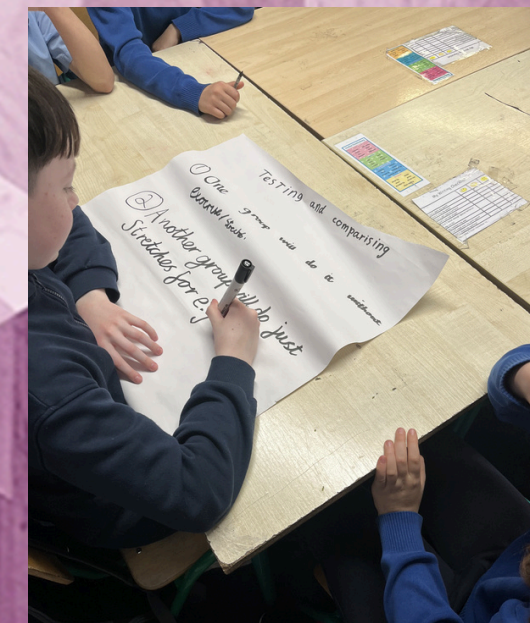
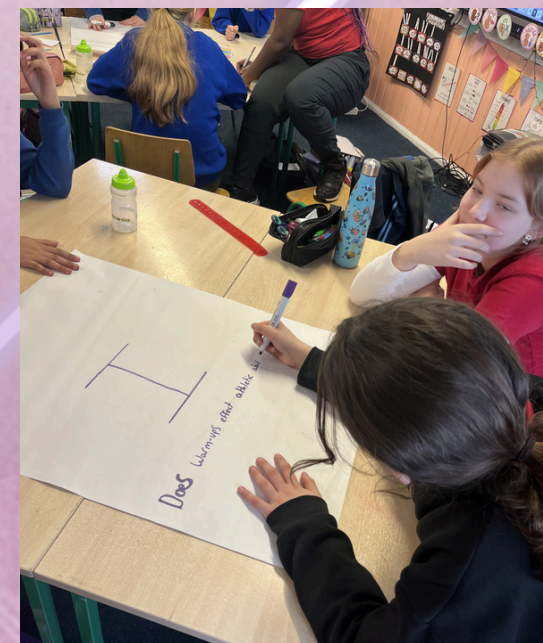
The KITE Framework
Choose your Trial Question
and Select your Outcomes

Watch on  YouTube







Step 4 : Selecting Outcomes

We used the KITE Framework to create learning outcomes for our randomised trial.

K - 6th Class Children

I - Testing to see if warm ups affect athletic ability?

T - 3 Groups; Compare 3 groups - 2 completing different types of warm ups and one group not completing any warm ups.

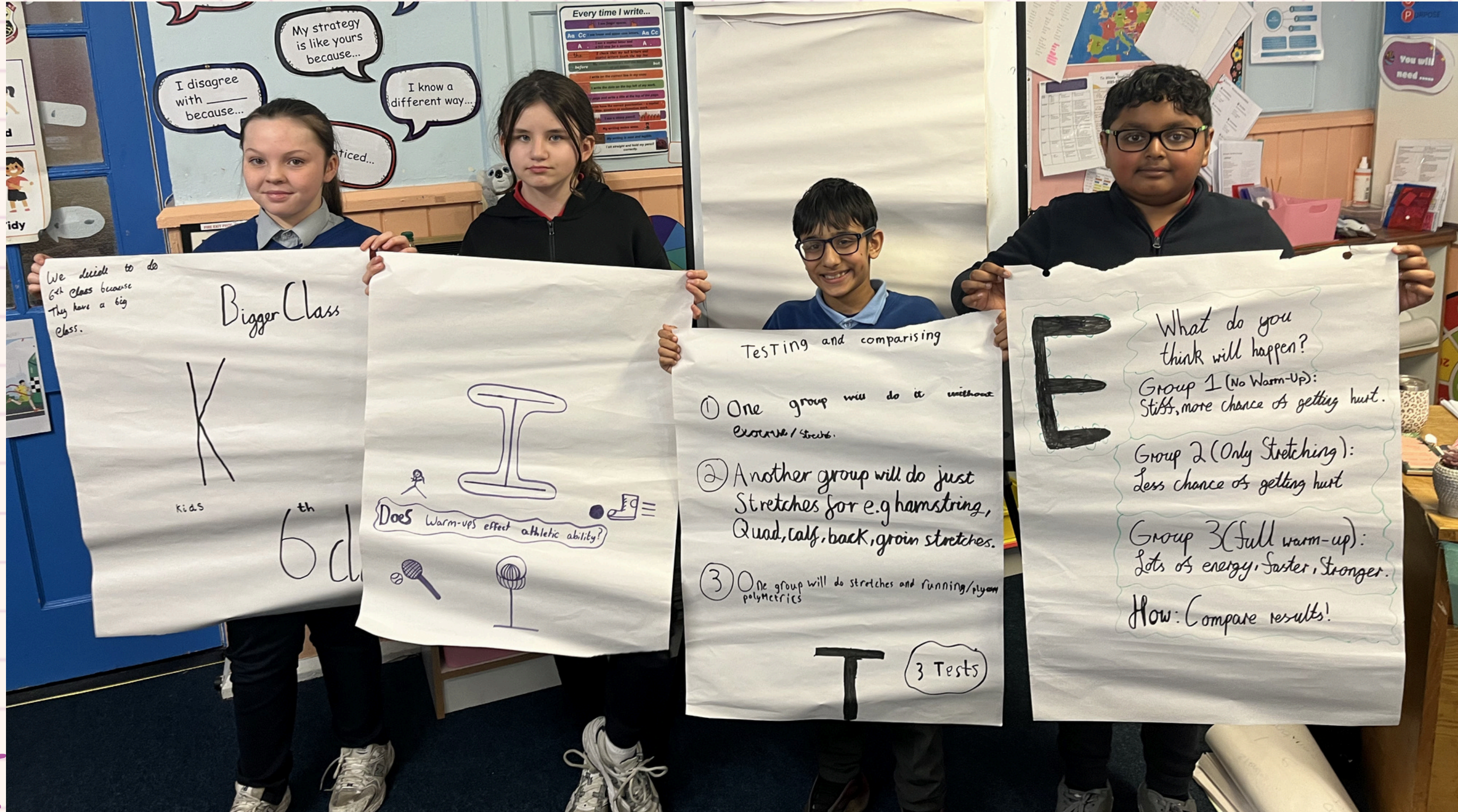
E - Athletic test scores and times

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!



KITE Framework



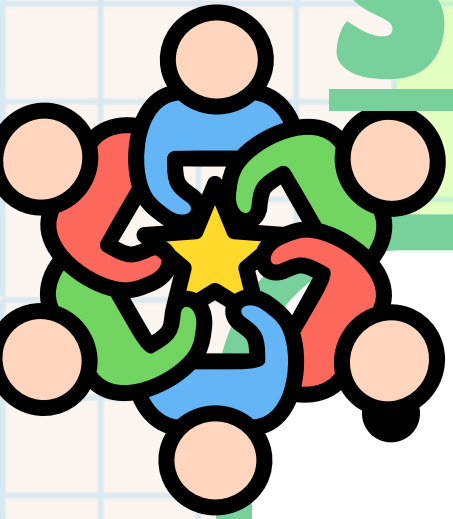
The **Kite Framework** was really useful for us to create our outcomes. We realised that at the end of this trial we want to know the impact of warm-ups on children's ability to complete different athletic exercises.

We decided that as there are different warm-ups we would use different formats such as stretches and plyometrics/running warm-ups.

We all agreed as a class that we would use 3 groups for our randomised test - 1 doing no warm-up, 1 doing stretches and the other engaging in stretches and plyometrics.

We used a base test as a control test to compare our test day results for all 3 groups.

Step 5: Participants and Consent



- For our randomised trial we decided to test on- **both 6th classes** in our school.
- We chose 6th class as they had a big number of students in their classes which helped our results be more **reliable**.





Getting Consnet



On our consent form we explained our randomised trial. We outlined what will happen, the advantages and disadvantages. People were given the choice to take part. They were also told that they can stop taking part at any time.

[See our Consent form here.](#)



START

Schools Teaching Awareness of Randomised Trials

Consent Form for St Attracta's NS Ballaghaderreen

Welcome to our randomised trial.

Our randomised trial is investigating how children perform during physical activities. You will be asked to take part in some simple movement and sport tasks. This will help us understand more about children's physical performance.

What will happen:

You will complete activities over 2 days and we will record your speed and distance for different activities on both days. These activities will take place out on our school yard.

Benefits of taking part:

- You will get an opportunity to exercise throughout the day.
- You may learn more about how your body moves during exercise.
- The study may help us learn more about children's physical activity.

Disadvantages of taking part:

- You may feel a little tired after doing the physical activities.

I understand with this project is trying to do

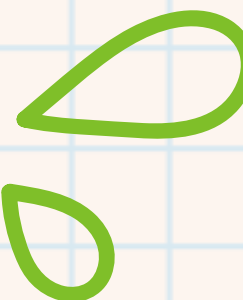
I understand that I can stop taking part in this trial at any time

I am happy to take part in this project

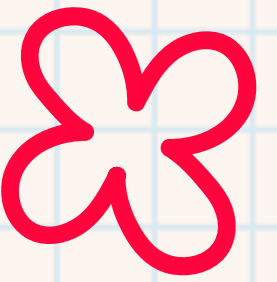
Signature

Date

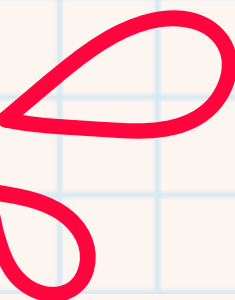
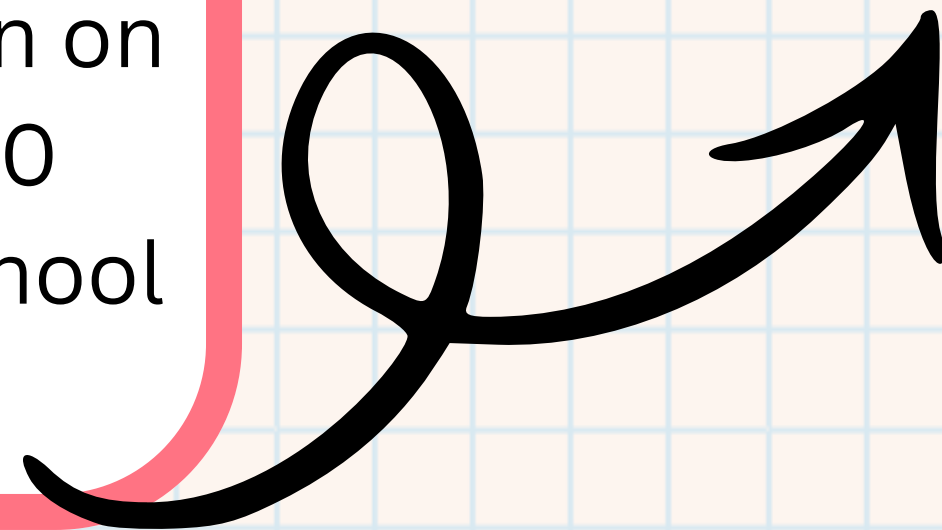
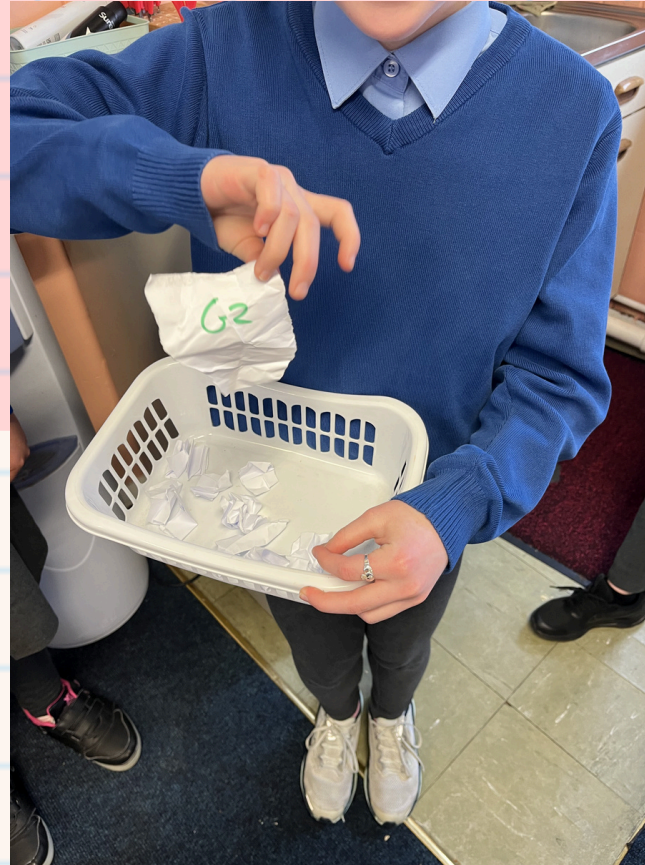
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Step 6: Randomisation



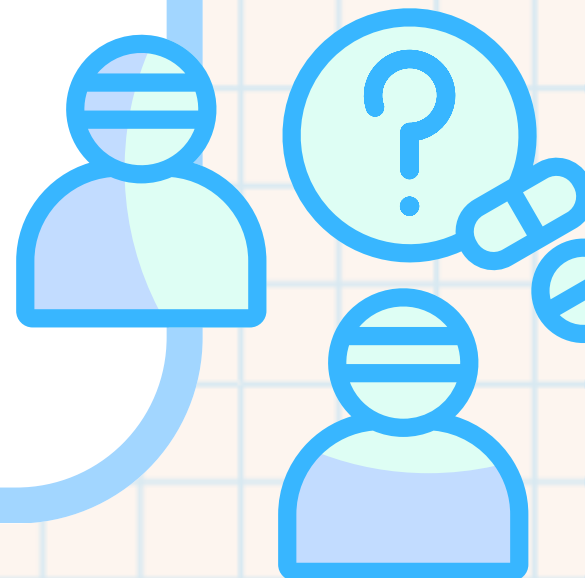
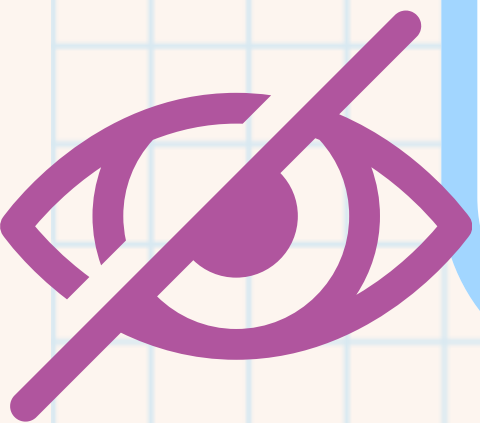
In total we had 36 students sign the consent form. We divided them into three groups. They were chosen by picking a piece of paper out a box. Each piece of paper had “Group 1”, “Group 2” and “Group 3” written on it. In the end we had 30 students who were in school on both test days.



Step 7: Blinding

When carrying out the tests the groups did not know what we were looking for. We just informed them that our randomised trial was looking at athletic performance i.e speed, strength and agility.

We also gave the tests at the **same time** to make sure people from each group couldn't talk to each other.





Step 8: Conducting our study

Preparation

Before carrying out our trial we decided that we needed to create multiple activities to test athletic performance on and that students could take part in.

We decided to complete 4 different activities:

- 50m sprint
- Standing long jump
- Shuttle run
- Shot put throw with a bean bag

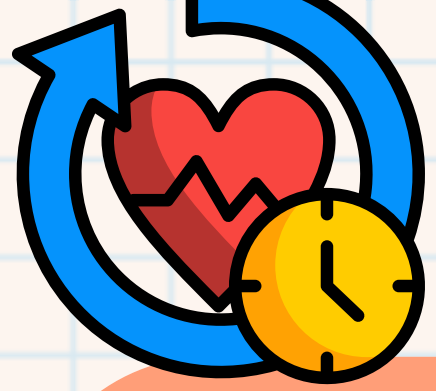




Step 8: Conducting our study

- The groups were shown demonstrations of each activity on the base test day as well as test day.
- Each group completed all activities as a baseline test without a warm-up in **separate** parts of the yard.
- **Trial day:** Three groups; each group was brought out separately; group 1 did no warm-up, group 2 did stretches and group 3 did stretches and plyometrics. All three groups then completed the 4 previously mentioned activities.





Our Warm-Ups



We asked local sportspeople and teachers about suitable stretches and plyometrics for our randomised trial. Here are some questions we came up with.

Sports Questions

- ① What ^{/stretches} exercises would you do before a match (Football/Gaelic)?
- ② What ^{/stretches} exercises would you do before batting/balling in cricket?
- ③ What plyometrics are best before sprinting?

What stretches would you recommend for sprints?

What are plyometrics?

What do you find the easiest?

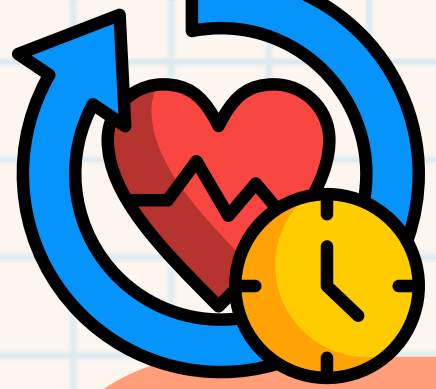
²
What different stretches should we do before P.E./Running?

³
What different does it make

⁴
What stretches should we do before Shot Put throw?

Which stretch do you find the best?

Our Warm-Ups



Stretches

- Quad and calf stretch
- Lunges
- Tricep stretch
- Shoulder swing
- Side leg and hamstring stretch

Stretches and plyometrics

- Same stretches as above
- Pogo hops (forward, backwards, sideways)
- Bound jumps
- Squat Jumps



Baseline Test

The 3 groups were brought out to separate parts of our yard to complete the baseline tests. We recorded each participants time or distance for each activity.



Test Day





Step 9: Reporting our findings

Once we had completed our base tests and our trial day test we went back to the classroom to look at our results.

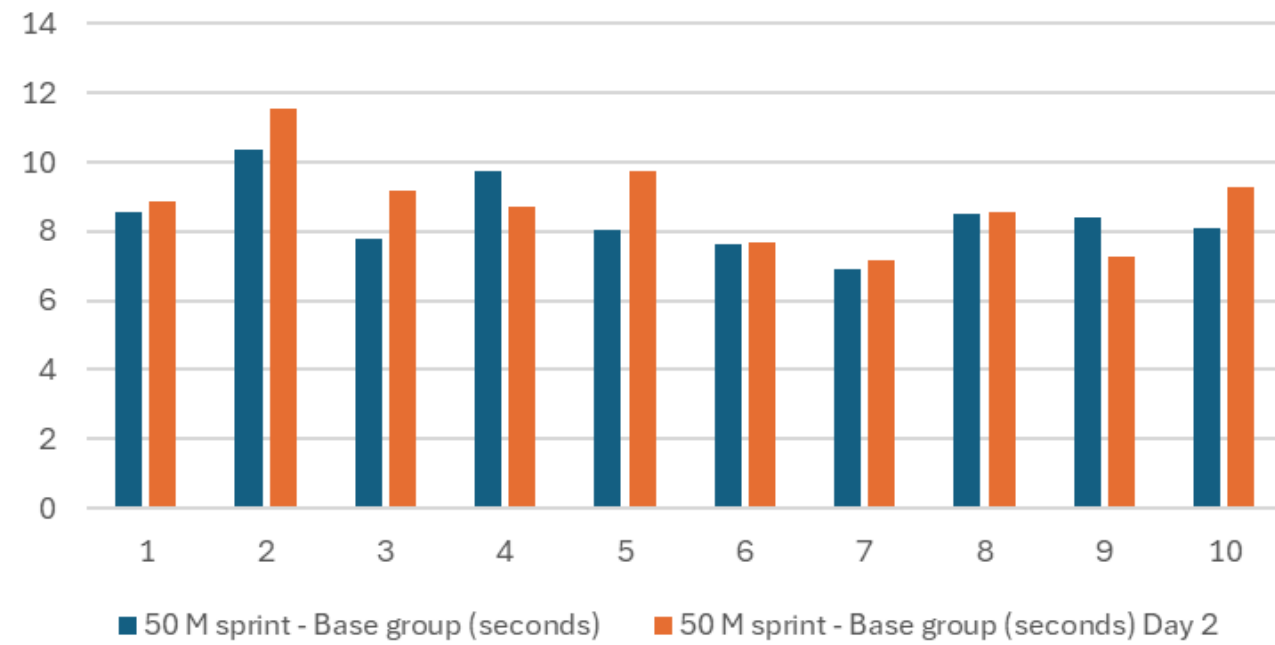
For each group we created 4 bar charts - one for each exercise. We showed each groups participants base day scores compared to each groups participants trial day scores.

We used the scores to create digital bar charts. This made it a lot easier to read all our scores and analyse the data. Our teacher showed us how to use excel to create these.

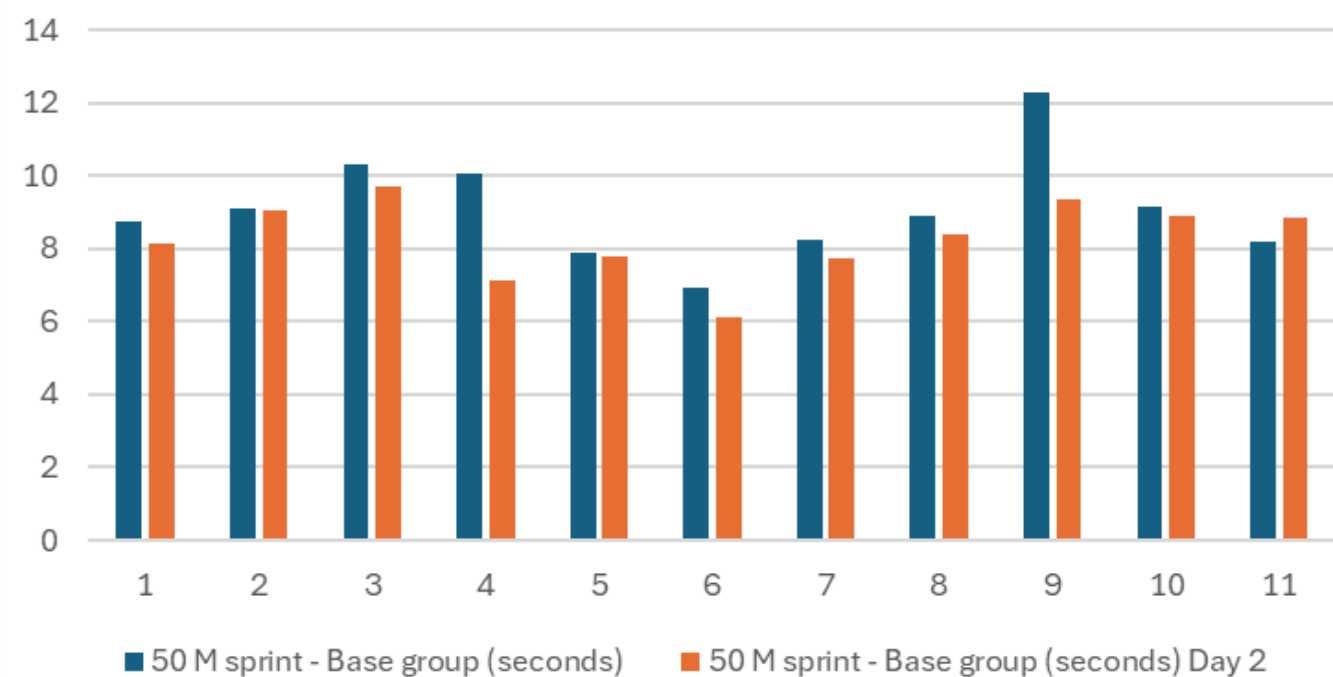
50 Metre Sprint

- Group 1 times remained very similar with minimal changes.
- Group 2 had some reductions in their time on test day.
- Group 3 times were notably faster compared to their base test scores. Group 3 also showed the biggest improvement in time based on averages (see next slide).

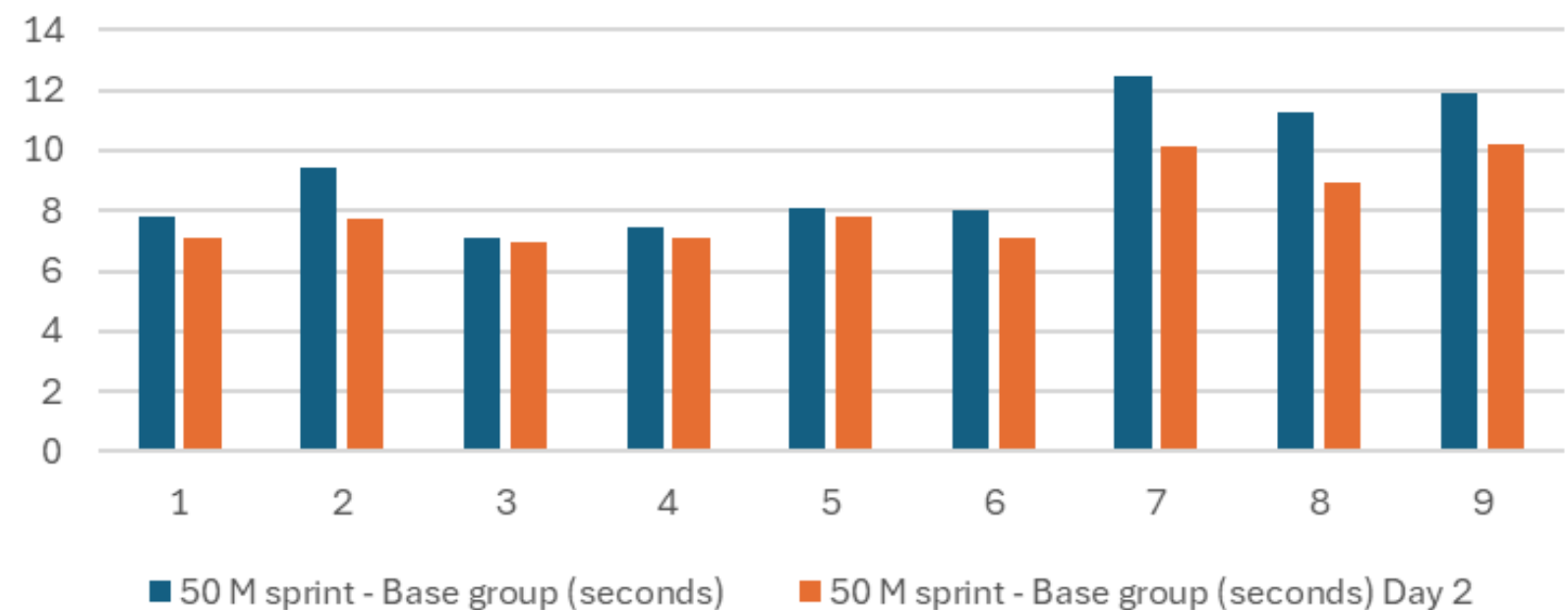
Group 1 - 50M Sprint (Sec)



Group 2 - 50M sprint (Sec)



Group 3 - 50M Sprint (Sec)



50 Metre Sprint

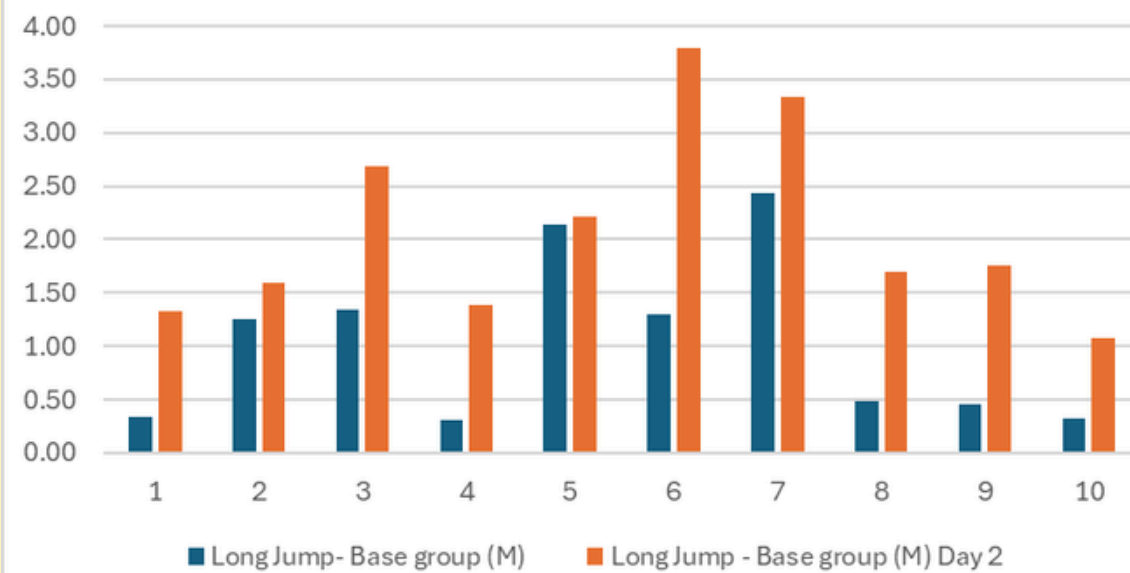
Group 1	Name	50 M sprint - Base group	50 M sprint - Base group
	1	8.56	8.88
	2	10.36	11.56
	3	7.81	9.2
	4	9.74	8.71
	5	8.06	9.76
	6	7.63	7.68
	7	6.91	7.18
	8	8.51	8.56
	9	8.39	7.29
	10	8.08	9.26
	MIN	6.91	7.18
	MAX	10.36	11.56
	Average	8.41	8.81

Group 2	Name	50 M sprint - Base group (seconds)	50 M sprint - Base group (seconds)
	1	8.76	8.14
	2	9.09	9.06
	3	10.3	9.71
	4	10.06	7.13
	5	7.89	7.78
	6	6.94	6.11
	7	8.23	7.76
	8	8.92	8.41
	9	12.3	9.34
	10	9.16	8.88
	11	8.19	8.84
	MIN	6.94	6.11
	MAX	12.3	9.71
	Average	9.08	8.29

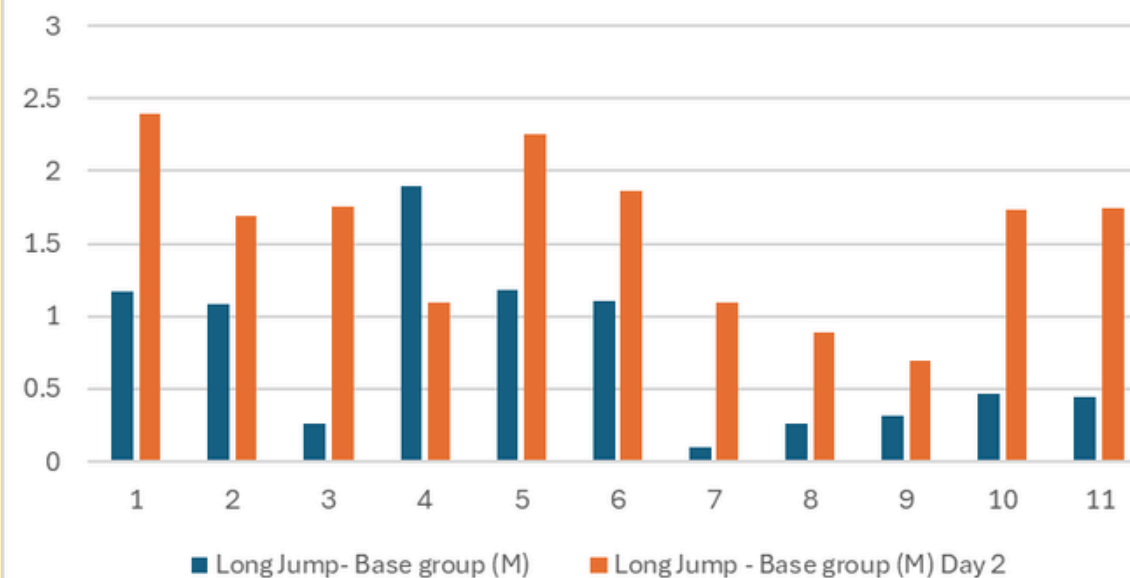
Group 3	Name	50 M sprint - Base group (seconds)	50 M sprint - Base group (seconds)
	1	7.81	7.09
	2	9.43	7.73
	3	7.09	6.93
	4	7.46	7.12
	5	8.09	7.78
	6	8.01	7.09
	7	12.46	10.13
	8	11.28	8.93
	9	11.93	10.2
	MIN	7.09	6.93
	MAX	12.46	10.2
	Average	9.28	8.11

Long jump

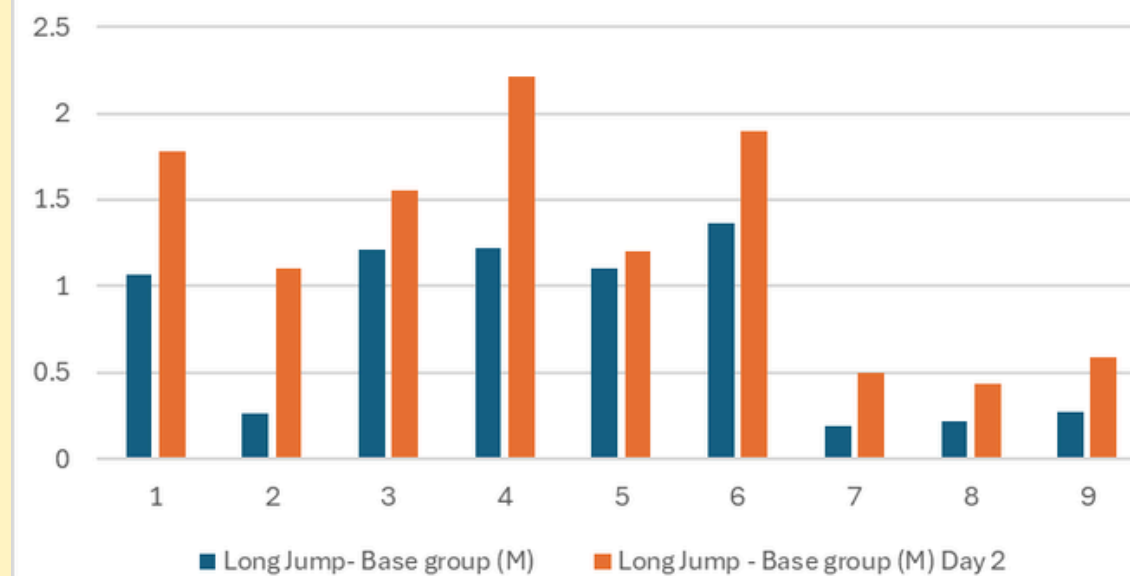
Group 1 - Long Jump (M)



Group 2 - Long Jump (M)



Group 3 - Long Jump (M)



All 3 groups improved their distance jumped significantly and by similar distance and averages. However group one had the biggest increase in average. See results on next slide.

- **Group 1:** Participants in group 1 all improved their distance jumped from base test day. Some participants had much bigger increases than others. This may be due to getting used to the technique of the exercise.
- **Group 2:** Similar to group one almost all participants increased their distance jumped bar participant 4.
- **Group 3:** Every participant in group 3 improved their results.

Long jump

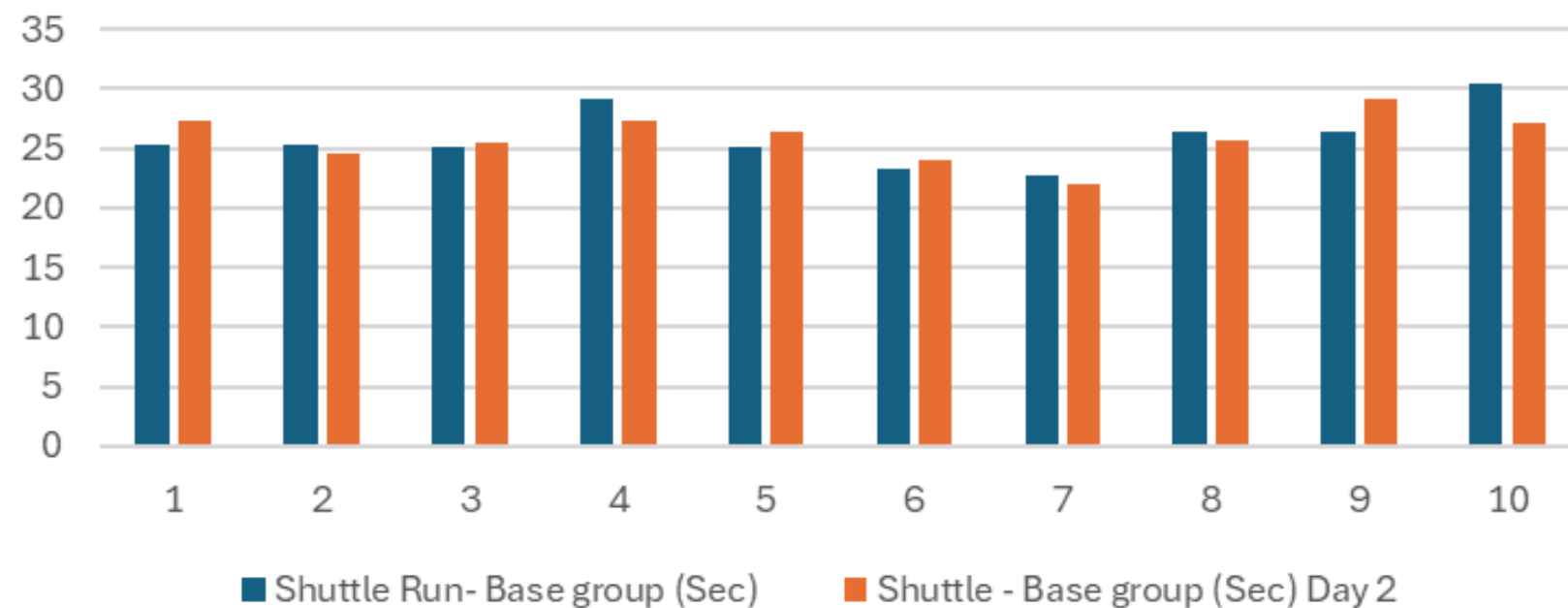
Group 1		Long Jump- Base group	Long Jump - Base
	1	0.34	1.32
	2	1.26	1.6
	3	1.34	2.68
	4	0.31	1.38
	5	2.14	2.22
	6	1.3	3.8
	7	2.43	3.34
	8	0.49	1.7
	9	0.45	1.76
	10	0.32	1.07
	MIN	0.31	1.07
	MAX	2.43	3.8
	Average	1.04	2.09

Group 2		Long Jump- Base group (M)	Long Jump - Base group (M) Base
	1	1.17	2.39
	2	1.08	1.69
	3	0.26	1.76
	4	1.9	1.1
	5	1.18	2.25
	6	1.11	1.86
	7	0.1	1.1
	8	0.26	0.89
	9	0.31	0.69
	10	0.47	1.73
	11	0.45	1.75
	MIN	0.1	0.69
	MAX	1.9	2.39
	Average	0.75	1.56

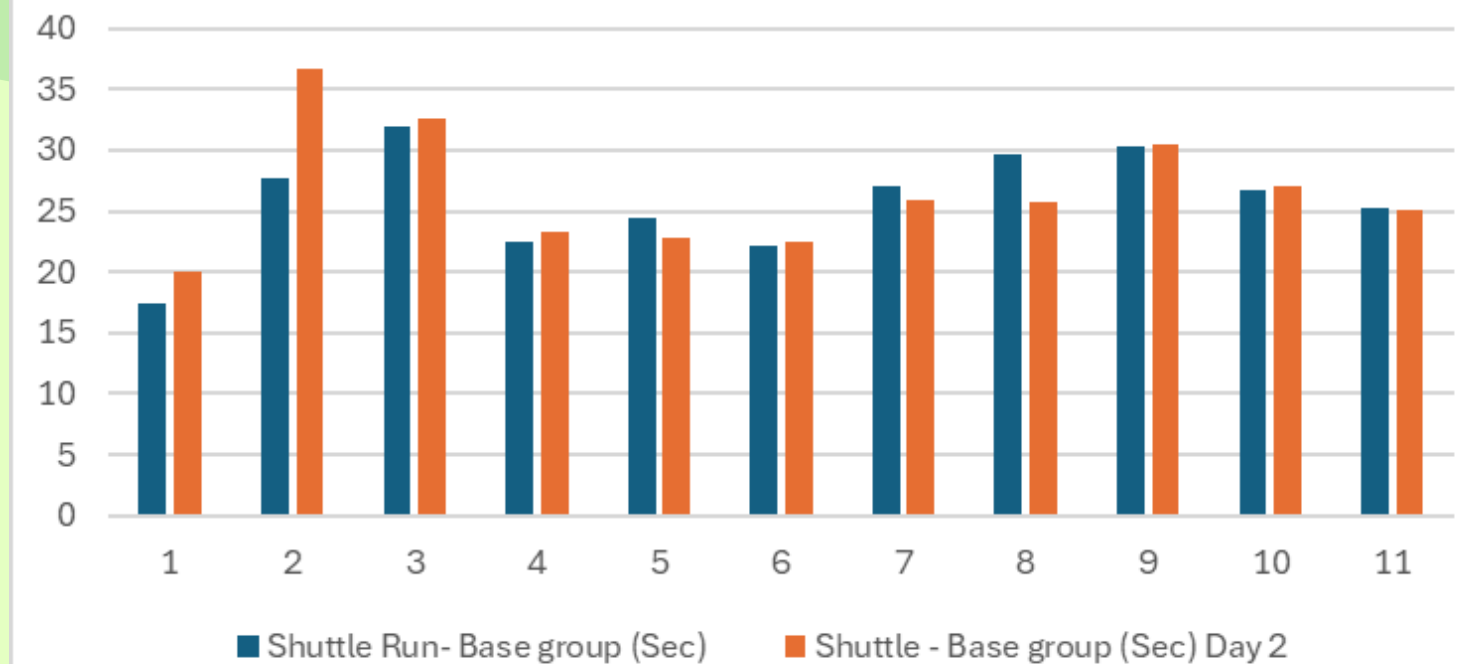
Group 3		Long Jump- Base group (M)	Long Jump - Base group (M) Base
	1	1.07	1.78
	2	0.26	1.1
	3	1.21	1.55
	4	1.22	2.21
	5	1.1	1.2
	6	1.36	1.9
	7	0.19	0.5
	8	0.22	0.43
	9	0.27	0.59
	MIN	0.19	0.43
	MAX	1.36	2.21
	Average	0.77	1.25

Shuttle Run

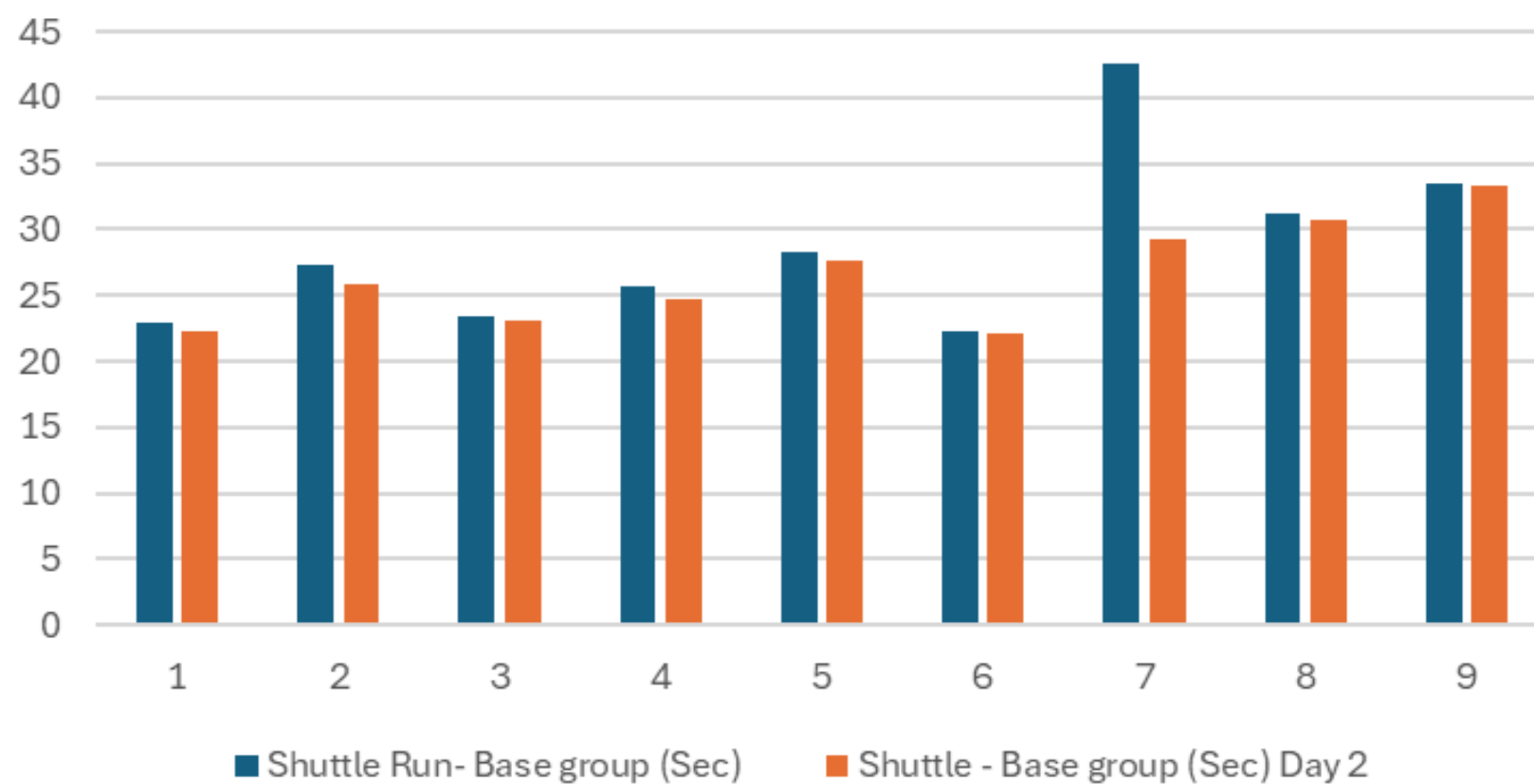
Group 1 - Shuttle Run (Sec)



Group 2 - Shuttle run (Sec)



Group 3 - Shuttle run (Sec)



- **Group 1** times varied from small increases in times to remaining at similar times. There was not many reductions in their times.
- **Group 2** had some reductions in their time on test day but also had some increases in times.
- **Group 3** times were all considerably faster compared to their base test scores. They had a significant improvement in time based on averages (see next slide).

Shuttle Run

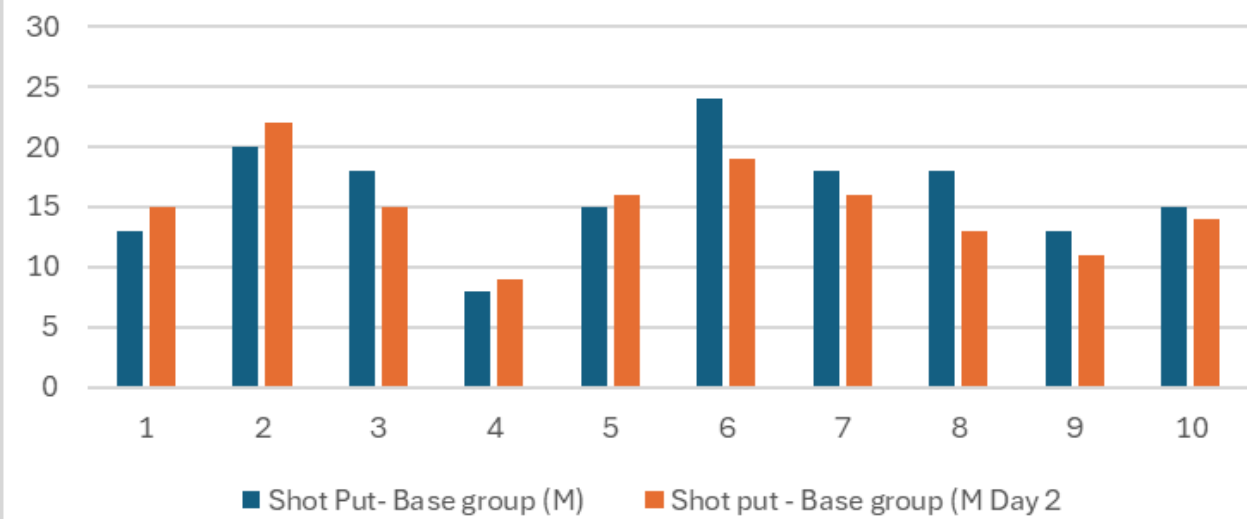
Group 1		Shuttle Run-Base group	Shuttle - Base group
	1	25.29	27.23
	2	25.26	24.58
	3	25.08	25.51
	4	29.09	27.33
	5	25.04	26.42
	6	23.26	24.08
	7	22.79	21.91
	8	26.43	25.61
	9	26.38	29.19
	10	30.36	27.08
	MIN	22.79	21.91
	MAX	30.36	29.19
	Average	25.898	25.894

Group 2		Shuttle Run-Base group (Sec)	Shuttle - Base group (Sec)
	1	17.49	20.03
	2	27.66	36.69
	3	32	32.56
	4	22.49	23.32
	5	24.44	22.76
	6	22.23	22.47
	7	26.99	25.86
	8	29.68	25.76
	9	30.28	30.54
	10	26.66	26.98
	11	25.24	25.13
	MIN	17.49	20.03
	MAX	32	36.69
	Average	25.92	26.55

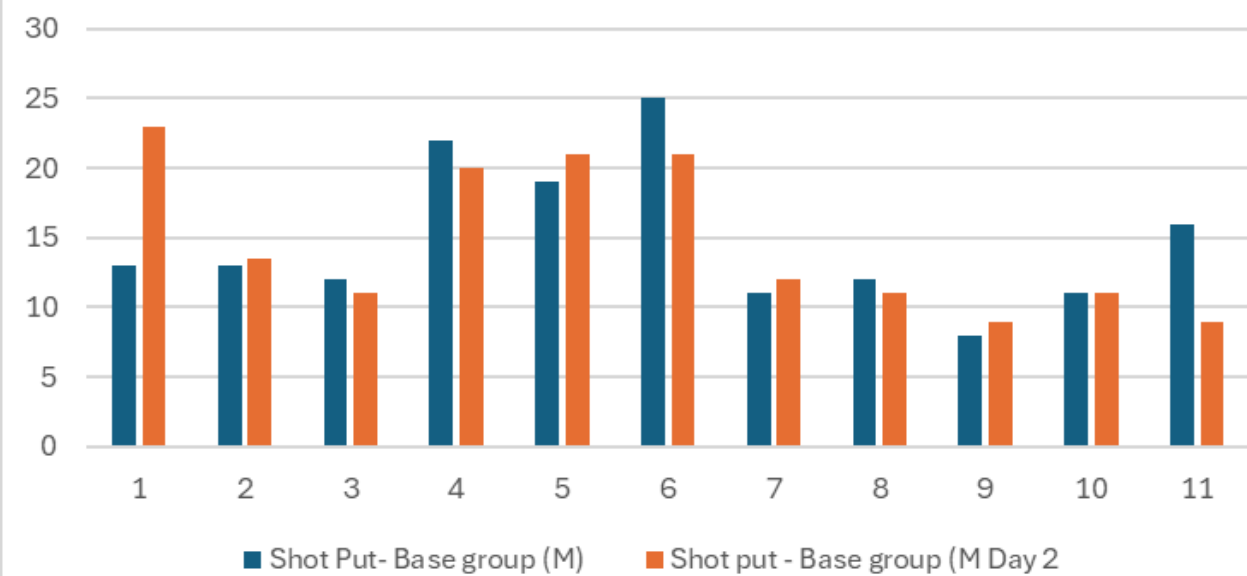
Group 3		Shuttle Run-Base group (Sec)	Shuttle - Base group (Sec) Day 2
	1	22.94	22.28
	2	27.31	25.8
	3	23.43	23.11
	4	25.72	24.76
	5	28.26	27.71
	6	22.26	22.17
	7	42.57	29.26
	8	31.28	30.66
	9	33.53	33.34
	MIN	22.26	22.17
	MAX	42.57	33.34
	Average	28.59	26.57

Shot Put

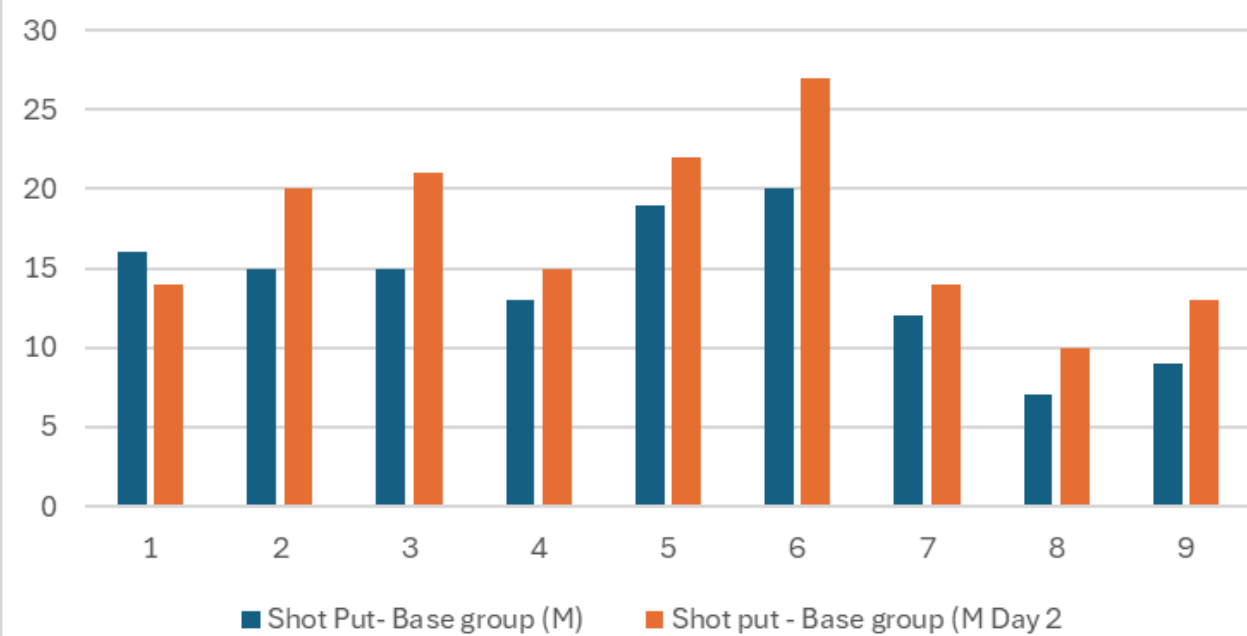
Group 1 - Shot Put (M)



Group 2 - Shot Put (M)



Group 3 - Shot Put (M)



Group 1 and 2's average distance thrown reduced slightly . However group 3 had the biggest increase in averages based over the two days . See results on next slide.

- **Group 1:** Participants scores from group 1 changed between both test days. Some children increased while others distance throws decreased. The decreases outweighed the increases and the average was brought down by 1.
- **Group 2:** Like group one some participants threw further on day 2 while others threw a shorter distance. Their average went down by a small amount (0.05). It was almost the same.
- **Group 3:** Almost every participant in group 3 improved their results. This meant their average increased greatly.

Shot Put

Group 1		Shot Put- Base group	Shot put - Base group
	1	13	15
	2	20	22
	3	18	15
	4	8	9
	5	15	16
	6	24	19
	7	18	16
	8	18	13
	9	13	11
	10	15	14
	MIN	8	9
	MAX	24	22
	Average	16	15

Group 2		Shot Put- Base group	Shot put - Base group (M
	1	13	23
	2	13	13.5
	3	12	11
	4	22	20
	5	19	21
	6	25	21
	7	11	12
	8	12	11
	9	8	9
	10	11	11
	11	16	9
	MIN	8	9
	MAX	25	23
	Average	14.73	14.68

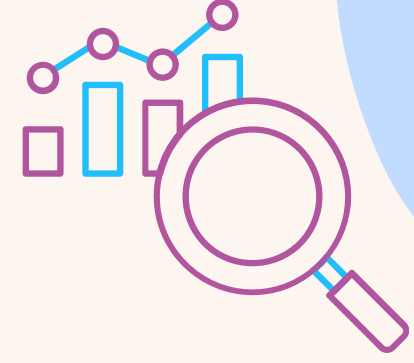
Group 3		Shot Put- Base group (M)	Shot put - Base group (M Day 2
	1	16	14
	2	15	20
	3	15	21
	4	13	15
	5	19	22
	6	20	27
	7	12	14
	8	7	10
	9	9	13
	MIN	7	10
	MAX	20	27
	Average	14	17.33



Step 10: Analysing our data

From analysing our results we could see that group 1 who did no warm-ups on either of the test days were slower by a small amount in the 50 metre sprint - 0.40 seconds. However in the long jump group 1 had a great increase in average distance jumped - over 1 metre. In the shuttle run group 1's average speed remained the same, there was a difference of 0.004 seconds - very minor change. Finally in the shot put group 1's average decreased by 1 metre. This showed that there was no major change in results for children's athletic performance.

Group 2 completed previously mentioned stretches prior to test day 2. Their average time to complete the 50 metre sprint was reduced by 0.79 seconds showing the participants had gotten faster. For the long jump group 2's average distance jumped increased by 0.81 metres. However the average time ran for the shuttle run increased meaning group 2 completed the runs slower, this increase was 0.63 seconds. This was a very small change in average but still important to highlight. Finally, for the shot put group 2's average distance thrown stayed in very close range. The average distance thrown went down by 0.05m. Overall group 2 improved their 50 m sprint, long jump and remained the same for the shuttle run showing the stretches had a positive effect.



Step 10: Analysing our data

Group 3 completed stretches and plyometrics prior to test day 2. In the 50 metre sprint the average seconds it took to run reduced by 1.17 seconds meaning group 3 ran the 50 metre sprint faster on trial day 2. For the long jump group 3's average distance jumped increased by 0.48 metres. Similarly, the shuttle run showed an increase in speed from the first test to test day 2. The groups average time to complete the shuttle run reduced by 2.02 seconds. The final activity the shot put also showed the same outcome with an increase in the average distance thrown by 3.33 metres. It is clear from the data that stretches accompanied by plyometrics had a positive effect on children's athletic performance as their run times were faster and their distance for shot put and long jump increased.



Our Thoughts



- The participants who completed both stretches and plyometrics performed better on test day 2 compared to their first test day results.
- The scores of the participants who completed stretches only slightly improved but not as much as we had expected.
- After looking at the results from the long jump and watching the participants we felt that the correct technique for the long jump is what helped some participants improve. The participants that had shorter jumps were not as confident with their technique.
- We were surprised by the distance that some participants were able to throw the bean bag as we had not expected them to throw it that far.



Challenges encountered

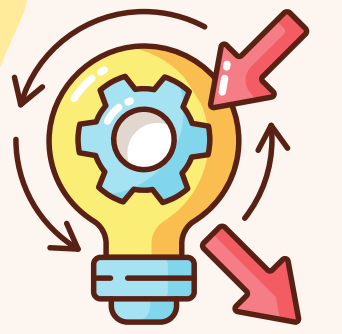


We had a few challenges when completing the trial.

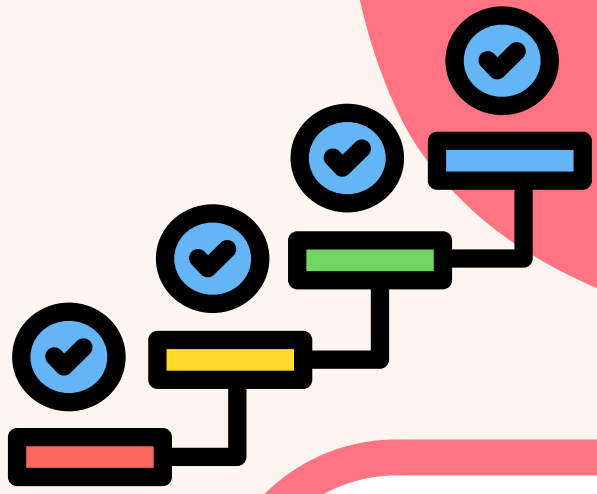
- Our first challenge was trying to get everyone present on the same day. We ended up having to complete our test without 6 of the participants. This left the group numbers uneven.
- The uneven groups made it harder to analyse data so we used group averages to get a clearer result and compared increases and decreases in averages rather than individual scores.
- On our base trial day some participants were also participating in Ramadam. We are not sure how this affected their performance on the day.



Reflections



- The START Trial was a great success and we loved running the activities on our trial days! It was a big hit. We definitely want to organise more activities throughout the year for us to run.
- We only tested 4 different exercises, we could have tested more exercises to get a better picture of everyones athletic performance.
- We could have had every person complete each exercise 3 times to get a more precise result as someone may have underperformed on one activity.
- We were wondering what effect plyometrics might have if they are done over a period of time rather than just on one day.



Next Steps



- We will share our START project with our school at our assembly and present our findings.
- We will talk to the teachers about including stretches and plyometrics in our PE lessons.
- We will ask our principal to lead the warm ups for whole school circuits on Wednesdays and 11 after 11 (11 minutes of exercise after 11 o'clock) on Fridays.
- We will contact our local GAA team and soccer team and share our findings so they too can use these exercises.



**THANKS FOR
LOOKING AT OUR
RANDOMISED TRIAL!**

**5th Hawthorn &
5th Alder**