THE UNIVERSITY OF AUCKLAND

FACULTY OF EDUCATION

Summer Learning Programme 2014/2015

Research Objectives

- whether providing reading books or mathematics workbooks to students would prevent “summer learning effect”
- whether the summer programme benefit students of particular reading and mathematics ability levels
- whether providing extra support (guidance) to parents would enhance students’ summer learning
- the longitudinal effects on students’ achievement in reading and mathematics when students participated over two consecutive summers

Executive Summary (1)

Expected Average Scale Score Gain in STAR Reading and PAT Maths (per month):

- How did we calculate it?

For STAR Reading…..(in scale score)

Year 3 to Year 4 - Average progress is 27.6 (27.6 ÷ 12 = 2.3 per month)

Summer 1 (Dec 2013 to Jan 2014)- 2.3 x 2 = 4.6 (estimated)

Year 4 to Year 5 – Average progress is 16.2 (16.2 ÷ 12 = 1.35 per month)

Summer 2 (Dec 2014 to Jan 2015) – 1.35 x 2 = 2.7 (estimated)

For PAT Maths……(in scale score)

Year 3 to Year 4 - Average progress is 9.2 (9.2 ÷ 12 = 0.77 per month)

Summer 1 (Dec 2013 to Jan 2014) – 0.77 x 2 =1.54 (estimated)

Year 4 to Year 5 – Average progress is 8.3 (8.3 ÷ 12 = 0.69 per month)

Summer 2 (Dec 2014 to Jan 2015) – 0.69 x 2 =1.38 (estimated)

Executive Summary (2)

1. **All treatment groups** made similar gains in STAR reading, over summers and during academic year, which were significantly higher than expected gains
   - The total gains in scale score was **18.22**. The expected average gain in scale score was 16.2 **(Feb 2014 to Feb 2015- *end of Summer 1 to end of Summer 2*).**
   - Total gains vs expected gain (**small effect size *d* = 0.16**)

2. All four groups made similar small gains in PAT math
   - The total gains in scale score was **8.11**. The expected average gain in scale score was 8.3
   - Total gains vs expected gain (effect size *d* = -0.02)

3. **Ability Levels-** "well below', "below" and "at" groups made gains in scale scores (over summers and during school terms)*****
   - In reading, the " well below" and "below" groups gained 19.72 and 19.41which were significantly greater than other groups. The expected average gain was **16.2**
   - "well below" total gains vs expected gain (effect size *d* = 0.28)
   - "below" total gains vs expected gain (effect size *d* = 0.26)
   - In maths, the "well below" group gained 10.33 which was significantly greater than other groups. The expected average gain was **8.3**
   - "well below" total gains vs expected gain (effect size *d* = 0.15)

*****need to correct for the *Regression to the Mean Effect*, further analysis is needed.

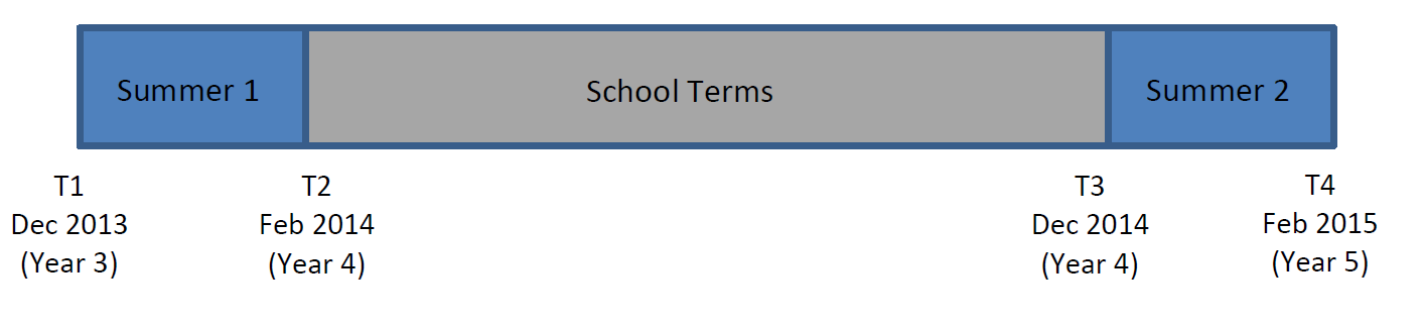
Executive Summary (3)

We conclude:

1. A two-year summer programme which provides either reading books or maths workbooks can significantly increase expected gains over summer in reading
2. No significant differences were found between the support and no support groups
3. It may be that the generalised programme effects across the 4 groups are related to similar interactions and resources promoted by both the books and the maths workbooks.

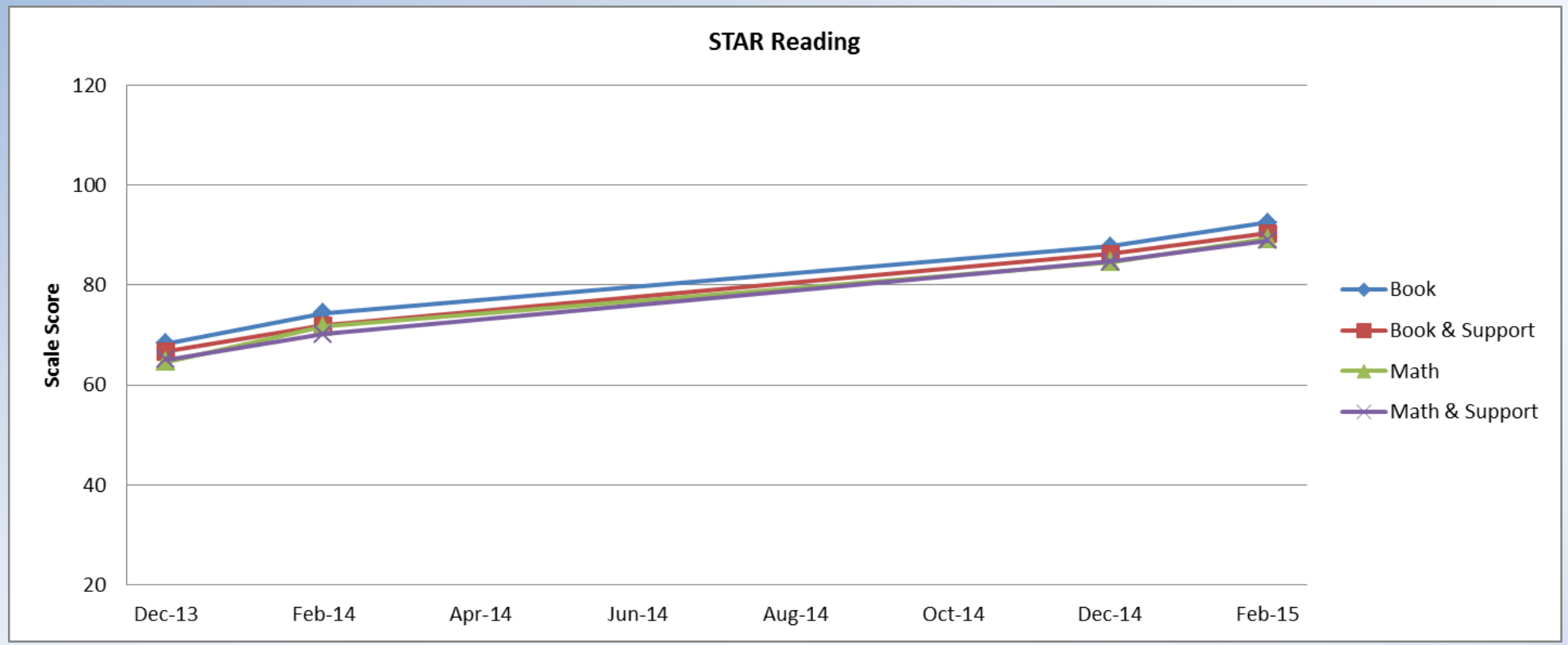
The Study

- 9 primary schools
- Over 500 Year 3 students participated in two consecutive summers



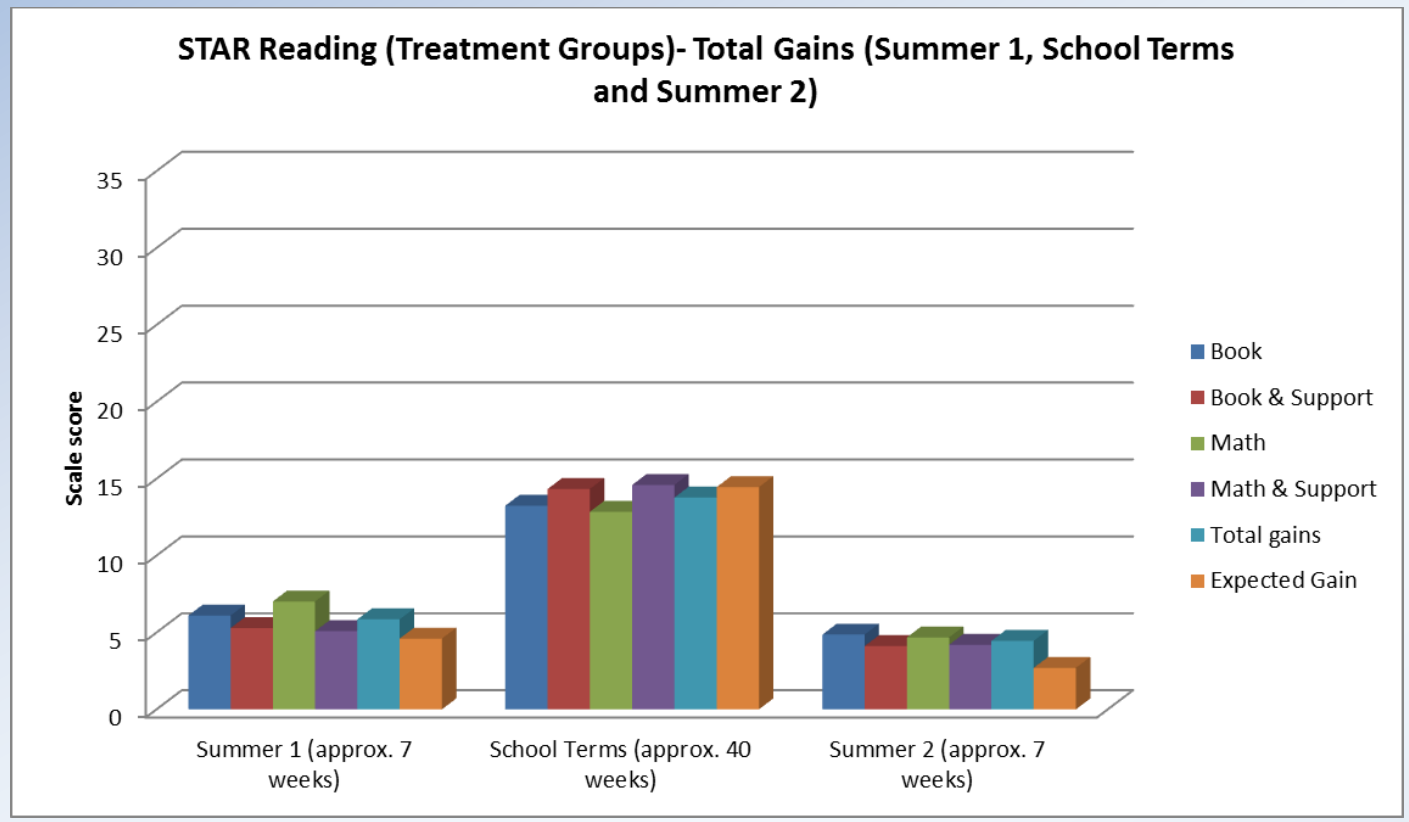
- Randomly assigned to four groups
  - **Group 1 (Book**) - students received 12 self-selected reading books and comprehension cards
  - **Group 2 (Book & Support**) - 12 self-selected reading books, comprehension cards, and support from school representative(s)
  - **Group 3 (Maths)** - 2 maths workbooks and maths activity booklet
  - **Group 4 (Maths & Support**) - same as Group 3 and support from school representative(s)

Overall Results: STAR Reading



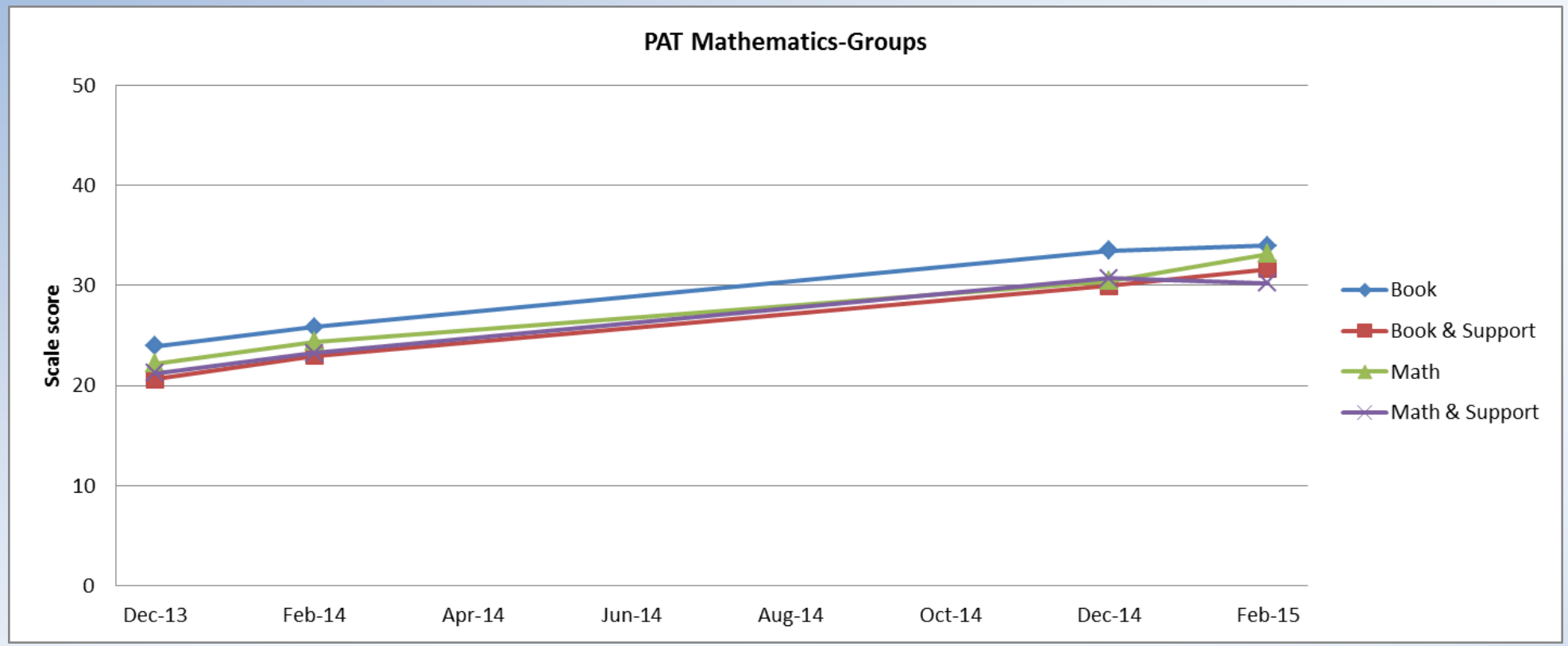
	Dec-13	Feb-14	Dec-14	Feb-15	Summer 1 (approx. 7 weeks)	School Terms (approx. 40 weeks)	Summer 2 (approx. 7 weeks)	N
Book	68.3602	74.4557	87.6989	92.558	6.0955	13.2432	4.8591	88
Book & Support	66.66	71.9442	86.2684	90.3811	5.2842	14.3242	4.1126	95
Math	64.6872	71.7022	84.5494	89.2292	7.0151	12.8472	4.6798	89
Math & Support	65.0527	70.1312	84.7204	88.9226	5.0785	14.5892	4.2022	93
Expected gain					**4.6**	**14.45**	**2.7**	

STAR Reading (Treatment Groups) -Total Gains (Summer 1 & 2 + School Terms = approx. 15 months)



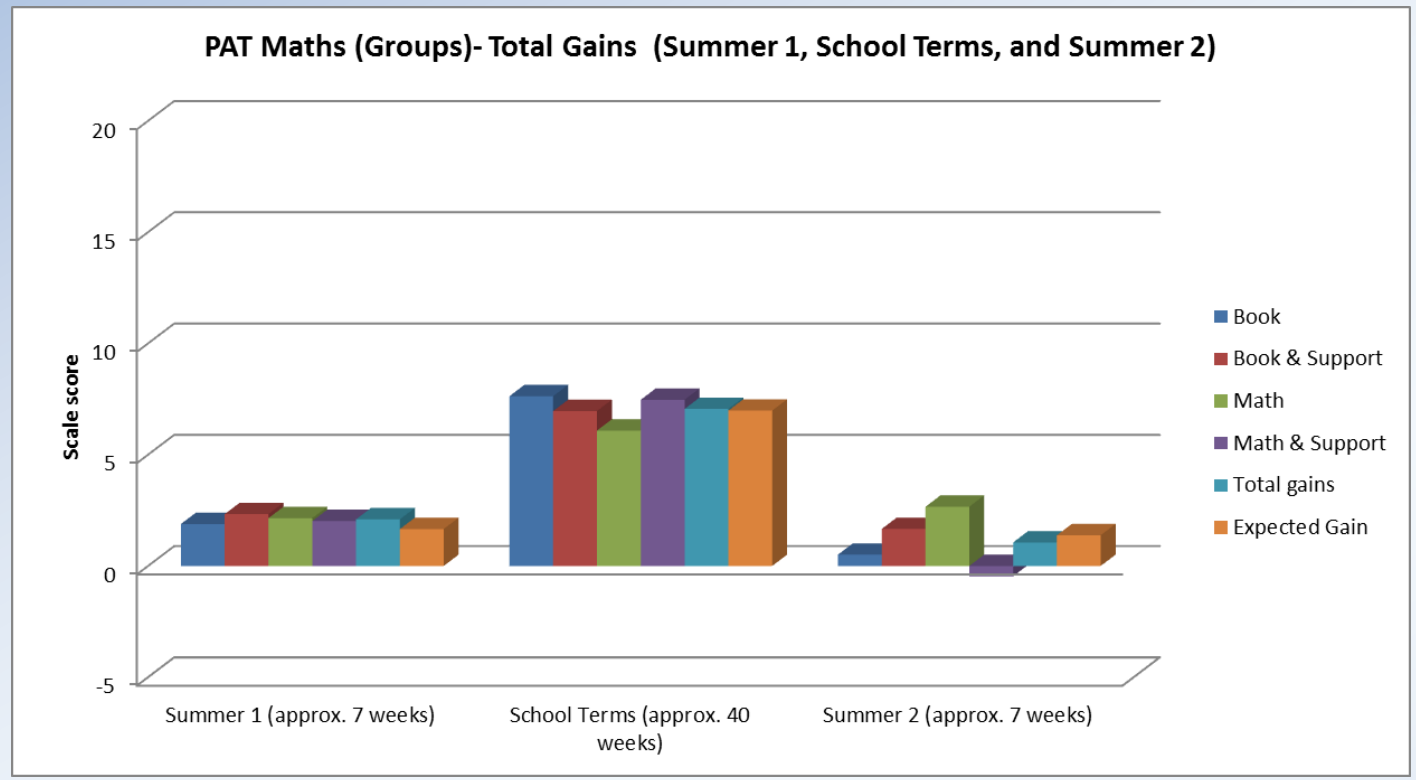
	Summer 1 (approx. 7 weeks)	School Terms (approx. 40 weeks)	Summer 2 (approx. 7 weeks)
Book	6.0955	13.2432	4.8591
Book & Support	5.2842	14.3242	4.1126
Math	7.0151	12.8472	4.6798
Math & Support	5.0785	14.5892	4.2022
Total gains	5.8494	13.771	4.4537
Expected Gain	4.6	14.45	2.7

Overall Results: PAT Mathematics



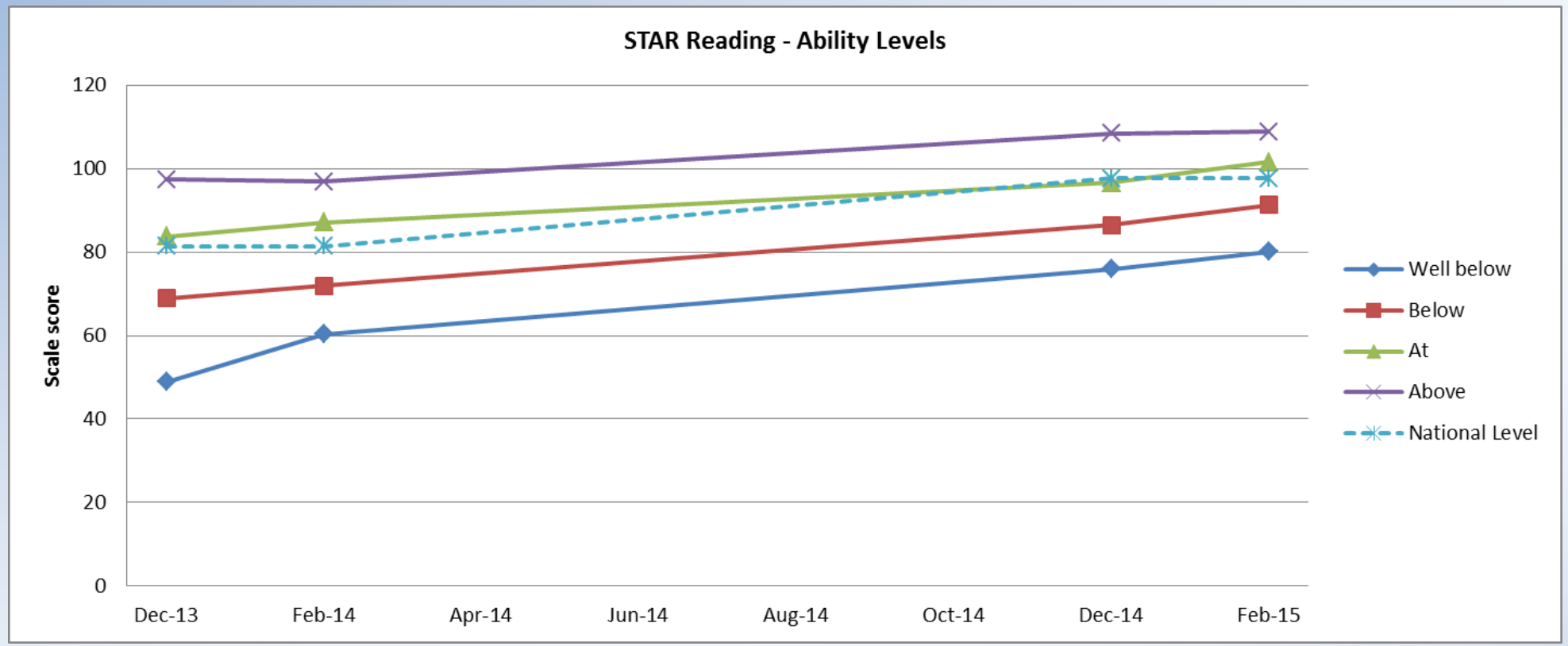
	Dec-13	Feb-14	Dec-14	Feb-15	Summer 1 (approx. 7 weeks)	School Terms (approx. 40 weeks)	Summer 2 (approx. 7 weeks)	N
Book	23.963	25.8494	33.4778	33.9852	1.8864	7.6284	0.5074	81
Book & Support	20.6639	22.9952	29.9566	31.6193	2.3313	6.9614	1.6627	83
Math	22.2365	24.3865	30.4716	33.1324	2.15	6.0851	2.6608	74
Math & Support	21.2317	23.2512	30.7195	30.2549	2.0195	7.4683	-0.4646	82
Expected gain					**1.66**	**6.98**	**1.38**	

PAT Maths (Treatment Groups) -Total Gains (Summer 1 & 2 + School Terms = approx. 15 months)



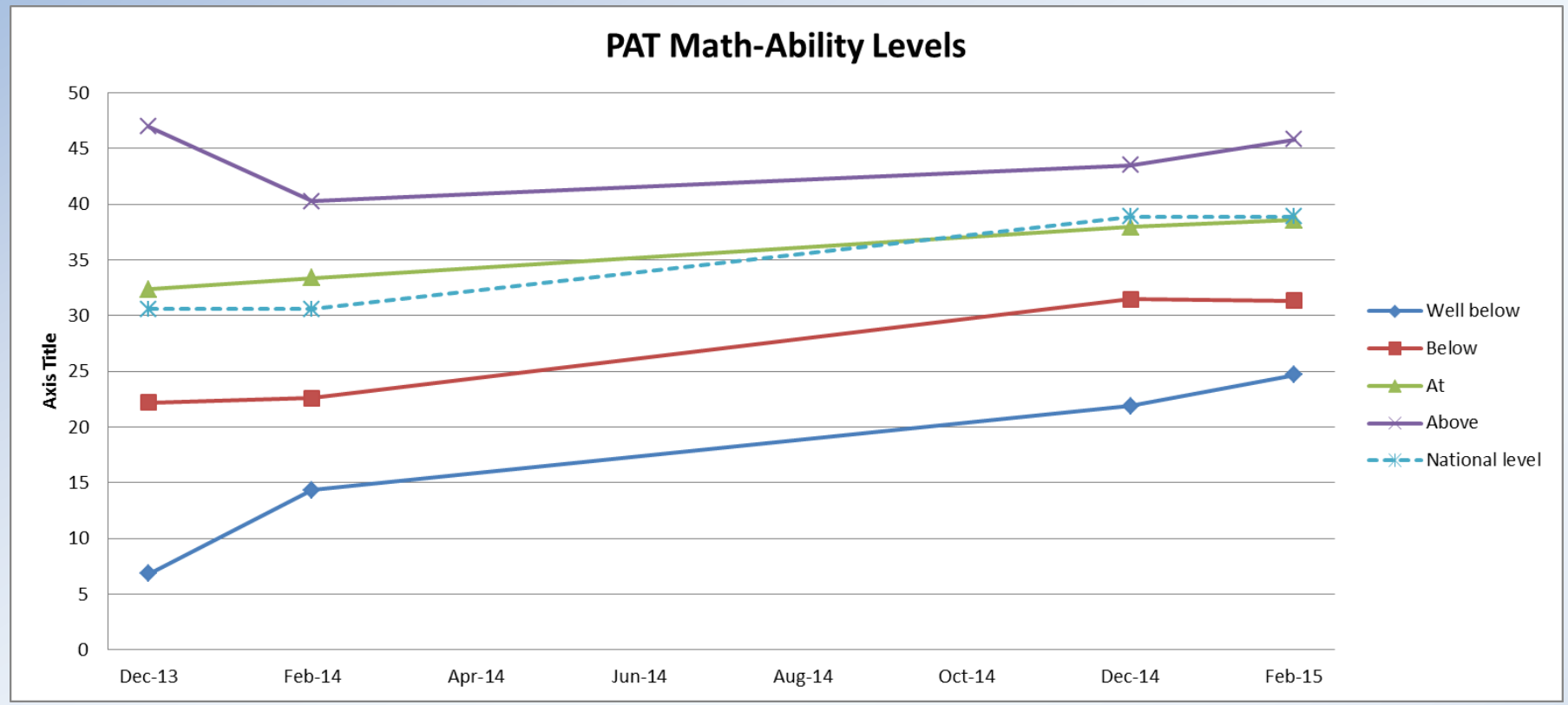
	Summer 1 (approx. 7 weeks)	School Terms (approx. 40 weeks)	Summer 2 (approx. 7 weeks)
Book	1.8864	7.6284	0.5074
Book & Support	2.3313	6.9614	1.6627
Math	2.15	6.0851	2.6608
Math & Support	2.0195	7.4683	-0.4646
Total gains	2.0969	7.0575	1.0559
Expected Gain	1.66	6.98	1.38

STAR Reading (Ability Levels)



	Dec-13	Feb-14	Dec-14	Feb-15	Summer 1	School Terms	Summer 2	N
Well below	48.8352	60.3677	75.9823	80.0895	11.5326	15.6145	4.1073	124
Below	68.8948	71.9359	86.4255	91.3438	3.0412	14.4895	4.9183	153
At	83.7162	87.0703	96.6608	101.5095	3.3541	9.5905	4.8486	74
Above	97.4286	96.8214	108.5071	108.8643	-0.6071	11.6857	0.3571	14
Expected gain					4.6	14.45	2.7	

PAT Maths (Ability Levels)



	Dec-13	Feb-14	Dec-14	Feb-15	Summer 1	School Terms	Summer 2	N
Well below	6.8363	14.356	21.8813	24.6835	7.5198	7.5253	2.8022	91
Below	22.1977	22.6124	31.476	31.3667	0.4147	8.8636	-0.1093	129
At	32.3513	33.3872	37.9846	38.5782	1.0359	4.5974	0.5936	78
Above	46.9818	40.2727	43.5273	45.8318	-6.7091	3.2545	2.3045	22
Expected gain					1.66	6.98	1.38	

Student Survey

Q: How many books did you read over the summer holidays?

- 35% of students in “well below” and “below” ability levels read at 1-10 books, 30% read over 10 books

Q: Did you do any math activities/exercises over the summer holidays?

- 53% of students in “well below” and “below” ability levels answered “Yes”

Learning activities over the summer (in reading and mathematics)

- 242 parents responded to either one or both questions
- 26 parents commented that they did not do anything else during summer to help their child with reading
- 55 parents reported they did not do anything else to support their child in mathematics
- Most common activities in reading were: Bible reading, sounding out unfamiliar words, library visits, reading magazines & local paper, and reading cooking recipes
- Most common activity in mathematics: practicing timetables
- *One commented "**No- never thought of it but will start giving it a try**" (from parent)*

Library Visits

- Parents did not change the frequency of library visits between the school terms and summer holidays.

Comprehension Cards and Maths Activity Booklet

- Parents were asked to comment on the usefulness of these resources at the end of the holidays
- 73% of parents thought they were useful
- 9% answered “a little bit useful”

Feedback from Teachers/Schools' Liaison Representatives

- Year 5 teachers found students were more engaged and ready to learn when they came back from summer holidays
- Parents were more willing to seek for support in Summer 2
- A great opportunity to connect to students and local communities
- Parents liked the comprehension cards which was easy to use, and it was fantastic to have other siblings involved when playing different mathematics games from the math activity booklet
- Parents were very grateful about the resources they received and noticed their children were reading more books over the summer
- Some teachers thought it would be easier to notice the differences if they had taught the same student(s) in Year 4
- Some parents thought the summer programme was time consuming
- Parents did not inform schools while they were away on holiday, and provided wrong contact details

We conclude:

1. A two-year summer programme which provides either reading books or maths workbooks can significantly increase expected gains over summer in reading
2. No significant differences were found between the support and no support groups
3. It may be that the generalised programme effects across the 4 groups are related to similar interactions and resources promoted by both the books and the maths workbooks.

What have we learned?

The Future?

Lessons learned:

- Summer reading programme over 2 yrs is better than 1 yr (familiarity);
- Having the right home liaison person improves effectiveness (credibility);
- Parents need simple strategies to assist their children;
- Communication with parents important though can be difficult;
- Children's involvement in selecting books at appropriate level important (but they shouldn't be over-whelmed with too many).

(based on the studies over the last 4 years)

Costs per student Yr 4 Students last summer:

- Books + printing approx. $44.00 per student;
- Support to schools to for meetings, home visits, etc $72 per student;
- These would double if 2 years involved.

These are not excessive and some savings are possible.