

Analysis of Variance Reporting



School Name:	Riverdale School	School Number:	2437
Strategic Aim:	<p>To maximise individual capability through quality teaching and learning.</p> <ul style="list-style-type: none"> All students including Maori and Pasifika students and students with special needs are able to access the New Zealand curriculum through our School curriculum As evidenced by progress and achievement in relation to National Standards, and demonstrated through Nga Matapono (the Key competencies) including pride in their unique identity, language and culture. And are supported in their learning where necessary so they can progress in relation to The New Zealand Curriculum and fully participate and contribute to the School, community environment and the global community. 		
Annual Aim:	To monitor and maintain on going teacher professional growth through the application of mathematical skills through PBL/STEAM		
Target:	<p>Target 2: All students and particularly hard to move Year 5-6 students in the curriculum area of mathematics;</p> <ul style="list-style-type: none"> Rich Maths Tasks that have a deliberate plan to demonstrate cross curricula practice Teacher Petite Inquiry to demonstrate shift in practice Enrich and extend ABOVE students through opportunity to use and demonstrate problem solving capacity PLD Staff: a unit allocated to research, visit and formulate a plan to lead staff through new/further learning Complete review of current practice and PLD opportunities/Staff Meeting 		
Baseline Data:	<p>Students are acquiring and demonstrating knowledge in the short term however long term application across the curriculum is being questioned.</p> <ul style="list-style-type: none"> End of Year Data Year 5 students; 9 students in total are BELOW standards with 6 boys and 3 girls represented in the data: (11: 6 boys/5 boys - increase by 2 girls form Mid-Year) End of Year Data Year 6 students; 6 students are identified in this group and are represented by 2 boys and 4 girls: (22% 12: 4 boys and 8 girls - increase by 2 boys/4 girls) 		



Actions <i>What did we do?</i>	Outcomes <i>What happened?</i>	Reasons for the variance <i>Why did it happen?</i>	Evaluation <i>Where to next?</i>
<p>Rich Maths Tasks that have a deliberate plan to demonstrate cross curricula practice;</p> <p><i>STEAM - Piako Rua/Poutama Explore - Piako Tahī/Pae Ake Creativity - Pounamu Atawhai These programmes were designed to give students opportunities with RICH tasks across multiple curricula using a 'Connect Teacher' to lift thinking and make connections from prior learning to real problems.</i></p> <p><i>Move to Collaborations of 3 teachers so that the 'Connect Teacher' could be used for STEAM, Explore or Creativity; main job to connect thinking for students from their learning to real problem solving.</i></p> <p><i>Maths300/Mathematics Achievement Challenge and NZ Maths have all been trialled in 2017 with our Year 5-6 students.</i></p>	<p>Each team across the school, led by Piako Tahī, created their own plan to deliver RICH Mathematics Tasks for students to consolidate learning from their workshops.</p> <p>Piako Tahī is the longest standing team running a parallel programme alongside their reading and mathematics workshops called Explore. Nikki Harland, team leader, ran part of TOD explaining the complex role of the 'Connect Teacher' in planning, delivering and ultimately assessment. Each team has begun the journey.</p> <p>Students have been given more opportunity to link and connect learning from workshops. This is highly motivational and students have less behaviour problems due to engagement. An inquiry was conducted at the Year 5-6 area where data and student voice was collected to this.</p> <p>The students have thoroughly enjoyed the RICH Tasks from Maths300 and NZ Maths and the teachers are still in the investigation stage gathering data to see</p>	<p>Rich professional development processes at Riverdale School combined with targets/strategic plan that each team leader executes in accordance to our Charter.</p> <p>The BOT, principal, senior management and wider leadership team are all on the same page and value all curriculum areas so that creativity comes to the fore and students are given a myriad of opportunities to develop mathematical thinking through rich tasks, STEAM, creativity and explore programmes which are unique to each team and the school itself.</p> <p>The lead teacher was given time, resourcing money and support to visit outside our school, research, interrogate data and run trials to bring evidence to the leadership team. The leadership team was given time and guidance through extensive/deep questions to observe and gather on the ground data from their teams and students.</p>	<p>Each team to understand about the importance of application using problems. A 'good' mathematics lesson starts with a problem and RICH tasks are only 'Rich' if the teacher has carefully selected it and is leading, connecting the learning through questioning.</p> <p>Students will have multiple opportunities through creativity, STEAM and Explore to connect their mathematical thinking to practice 'hands on' tasks. Each team will use their strengths to develop a rich programme and will develop their understanding of the 'connect teacher' role and how to question to extend thinking and connect their learning to the tasks.</p> <p>Year 5-6 teams will use Mathematics Achievement Challenge as part of their SDL/SDA programme especially for their ABOVE students as these inquiries develop mathematical thinking in real world contexts and are highly motivating and engaging. These could be trialled with BELOW students if the teacher is guiding (their is a lower level that was not trialled).</p>



<p>Teacher Petite Inquiry to demonstrate shift in practice;</p> <p><i>‘Learning in the Fast Lane’ Suzzy Pepper Rollins was used across the school and each teacher completed 2 Petite Inquiries throughout the year.</i></p>	<p>the impact.</p> <p>Using the text has been beneficial to all teachers who have analysed practice, made changes and have significant data and narrative to support that students have shifted and that teacher practice and capabilities have been lifted.</p> <p>Not all teachers focused on Mathematics.</p>	<p>Each teacher was given the text, given guidelines for Teaching as Inquiry and then the importance of sharing was consolidated through firstly, specifically grouped teachers and whole staff share sessions. The second inquiry was shared through teams and then onto the leadership ‘Think Tank’.</p>	<p>Maths300 will be used as a resource to source teacher led tasks who will turn them into RICH tasks using the current ‘workshop’ organisational systems. Once the teachers have taught skills or knowledge this can be the application or consolidation.</p> <p>Continue to use ‘Learning in the Fast Lane’ however teams to gain a deeper understanding of each chapter and how all elements need to be in play to accelerate students who are BELOW. The book is perfect to hone the ‘Teaching as Inquiry’ process and use this learning to target students in who are Tier 2 and track using the new Data Monitoring processes.</p>
<p>Enrich and extend ABOVE students through opportunity to use and demonstrate problem solving capacity;</p> <p><i>The Maths Explorers group was extended in 2017 to include Year 5-6 students who were placed ABOVE National Standards in Mathematics. They met once per week for extension activities using practical hands on activities and were led through</i></p>	<p>We extended the EPro8 trails to all students ABOVE and used the EPro8 activities and ‘connect teacher’ questioning. Students developed and connected their own mathematical and scientific thinking to the practical tasks rather than just being told what to do. This was evidenced by the two team taking equal first place at the regionals with exceptional display of structural engineering in comparison to last years groups. Both groups went on to the semi</p>	<p>The PD at Teachers Only Day in February focused on the role of the ‘connect teacher’. This was used to extend the thinking of the students and equip them with ‘not just isolated knowledge’ but practical hands on application of their mathematical knowledge so that they had the confidence to complete challenges during the EPro8 Series.</p> <p>Significant notes taken during this process about gaps in knowledge/skills to</p>	<p>Use the same format to run practical trials across Year 5-6 and also extend the opportunity to four teams instead of two. See extensive review notes on EPro8 and the foundation knowledge/skills that need developing to complete challenges as a team.</p> <p>Use the resources that are have been built up in the science cupboard to extend this learning to others as part of</p>

<p><i>individual inquiries into real life mathematics; Mathematica Achievement Challenges.</i></p> <p><i>EPro8 Challenge this year gave more capacity for students to understand the process with 3 sets of trials before the two teams were chosen; one all girls and one all boys team. Being the second year we were able to use our experience from 2016 and the types of skills, attitudes and KC's needed to work as a team and persevere through the practical challenges.</i></p> <p>PLD Staff: a unit allocated to research, visit and formulate a plan to lead staff through new/further learning;</p> <p><i>Visits to school running Maths300, Prime Mathematics.</i></p> <p><i>Discussions with teachers leading in the area of Mathematics at their school investigating the questions needed to move practice forward in mathematics.</i></p>	<p>finals and the all girls team went through to the Grand Finals. The EPro8 organisers mentioned our girls team, stating; "They had never had a team understand the challenges, organise themselves and complete each task with such confidence."</p> <p>Investigations and trials took place in the Year 5-6 area following the interrogation of mathematics data. Local schools using Maths300, Prime Maths and Mathematics Achievement Challenge were visited and the school purchased Maths300 and Mathematics Achievement Challenge using this on small groups.</p> <p>The leads in this research visited a outside provider and created questions for the leadership team to take back for information gathering regarding the practice of mathematics and the tasks used for application of learnt skills and</p>	<p>form part for the review for 2018. This was observed during the semis and grand final.</p> <p>Targeted, planned time and direction from the principal was given so that robust discussions could be had inside and outside the school before any decisions were made about trials and/or mathematics practice observations.</p> <p>The principal was able to offer many opportunities for PD in the area of ERO Effective Evaluation practices, leading staff through change, taking the time at each stage so that all options are counted for.</p>	<p>creativity or problem solving in the classroom programme.</p> <p>Use 2018 to continue to interrogate data and target hard to shift/reach students using different techniques from the trialled resources. These resources should not be laid across a classroom but used to target the Tier 2 students to see which has the greatest impact.</p> <p>Continue to use Maths300 as a teacher resource to consolidate learning and possibly for extension for the students who have proven the ability to apply their knowledge. Remembering; a RICH task is only RICH when the teacher is involved so</p>
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Tātaritanga raraunga

<p><i>Observations of our own practice in Mathematics in each team to investigate patterns, trends, gaps and/or next steps for students who were at risk, BELOW or hard to shift.</i></p> <p>Complete review of current practice and PLD opportunities/Staff Meetings;</p> <p><i>School leadership team went through the Effective School Evaluation process looking at current investigations, trials, analysis of our own school data, interrogation of this data with further investigations into mathematics practice across the school.</i></p> <p><i>A google doc was set up which each team used to evaluate the current practices in mathematics teaching and what the data</i></p>	<p>knowledge. The team leaders and the leads were asked to observe practice and interrogate what was happening for the students at risk or below. Each team completed the Google Doc so a comprehensive review could take place.</p> <p>Currently the leadership team have interrogated data, looked at the research and evidence into each programme, seen the in school trials and the next step is to collectively make some decisions regarding mathematics practice, workshops, rich tasks and target groups for 2018.</p> <p>The leadership team will continue the ERO Effective Evaluation Cycle into 2018 to complete the process.</p>	<p>Senior management and the unit holder were given time to bring all data, hunches, trial information, research and evidence to the leadership group so that in 2018 decisions can be made regarding RICH Tasks and the direction of mathematics practice at Riverdale School for optimum impact on learners, especially hard to reach/shift.</p> <p>Google doc easy to complete so that each team was able to complete. Team leaders in the process of questioning their team were able to understand and see gaps in practice so that changes can be made in 2018.</p> <p>The leadership team has a much better understanding of the ERO Process as they were led through it.</p> <p>The investigation/collaborative sensemaking is still underway and will be ongoing for 2018.</p>	<p>that questions are used to connect learning to the contents of the task.</p> <p>Teachers to build their capabilities so that they can identify the knowledge and skills needed to complete the RICH tasks and the are able to identify the gaps in students learning for ‘just in time’ workshops.</p> <p>Continue the review, Unit for the Lead and the focus on mathematics through to decision making regarding the resources needed, changes in practice that need to be imbedded and the types of assessment to gage impact for learners at Tier 2.</p> <p>Upskill team leaders in Data Monitoring processes to track the progress and/or acceleration from targeting using the new resources and strategies which come from the leadership team using the ERO Effective Evaluation process.</p>
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Planning for next year:

- Unit for lead in mathematics - continue the ERO Effective Evaluation process and make changes to current mathematics practice
- Continue to use 'Learning in the Fast Lane' combining all chapters to target and accelerate students WELL BELOW and BELOW
- Targeting of Year 5-6 students in area of mathematics
- EPro8 review document for changes in teaching and learning
- Teams to use Maths300 resources for targeting RICH tasks through teacher led session (application of knowledge/skills)
- Changed 'Data Monitoring' practices to gather evidence of the impact on Tier 2 students
- Mathematics Achievement Challenge used in classrooms for extension and/or teacher led inquiry into real life mathematics