

Documenting evidence

This is a sample of one teacher's evidence.

It is important to note that evidence may vary significantly from this particular sample due to the context of each school and the practice of each individual teacher.

Teacher A

Evidence of Professional Practice for Full Registration

Inquiry –

‘How can I use data to inform, track and improve student’s learning in the numeracy focus: multiplication and division?’

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EVIDENCE OF PROFESSIONAL PRACTICE FOR FULL REGISTRATION

ESTABLISHING CONTENT AND CONTEXT FOR STUDENT LEARNING

The students

The primary school is a co-educational Government school. There are approximately 650 students over 32 straight grades. Our school facilitates contemporary educational design and promotes active student-centered learning through the creation of flexible spaces. Teachers work in teaching communities to create teaching opportunities in classrooms to better cater for the individual needs of all students.

We have a low number of special needs students throughout the school and are spread amongst the whole school. All six Grade One teachers work collaboratively and know all the students well. The primary school invites the parents into classes and fortunately my parents are extremely pro-active and involved with their child's education.

At the primary school, there is a mixed level ability in student achievement. Currently in my Grade One class I have 23 students. In Grade One the students are working towards achieving Level 1 in AusVELS and after analysing students current progression points the following data is in relation to my Homeroom 14 students derived from a moderating day in September 2013:

- 95.6% of students have shown a minimum of 6 months growth according to their previous AusVELS levels in Reading & Viewing, Writing and Number and Algebra;
- 47.8% students are working above expected Level 1 AusVELs in Reading;
- 34.7% students are writing above expected Level 1 AusVELs in Writing;
- 34.7% students are working above Level 1 AusVELS in Number & Algebra for Numeracy;
- 86.9% students have reached expected Level 1 Ausvel in reading

Content for the program of learning

The content for the program of learning will be innovative and a rigorous curriculum. It will be based on the Australian Curriculum and Victorian Essential Learning Standards (AusVELS) and framed through the Primary Years Programme of the International Baccalaureate (PYP IB).

AusVELS curriculum will help me to provide a coherent and comprehensive set of content and common achievement standards. Our school uses AusVELS to plan student-learning programs and assess student progress.

My program will be delivered through a PYP pedagogy. This will allow me to create a positive, stimulating and challenging learning environment, where each focus child can experience success and is supported to develop a love of life-long learning.

The Numeracy Scope and Sequence for Multiplication and Division will also guide the content for the program based on the Early Numeracy Research Project growth points.

Last Term our school was fortunate to have a leading expert in mentoring and teaching Frank Schoonderbeek visit and work exclusively with the staff at the primary school. Frank has developed a Scope and Sequence document for P-7 years that is directly linked to the AusVELS progression points. I will use his specific document: *Number and Algebra; sub strand: Number and*

Place Value to also guide the content for the program of learning.

Context of student learning - range of learning levels

Student 1

Year: 1

Language Background: Sri Lankan Australian

Student 1 is a Grade 1 student who is enthusiastic, intelligent and a self motivated learner. At home he is supported with additional tutoring and his parents come from an educational background. At the beginning of Term 2, Student 1 completed the Online Numeracy test for Multiplication and Division and has confidently achieved the following:

- Find the total number out of several multiples
- Model all objects to solve multiplicative and sharing situations
- Solve multiplication and division problems where objects are not all modeled or perceived
- Can solve a range of multiplication problems using commutativity, skip counting and building up from known facts
- Can solve a range of division problems using strategies such as fact families and building up from known facts

I have selected Student 1 as a focus student because he is working above expected Level according to AusVELS and I am dedicated to differentiating, engaging and challenging his potential needs for our upcoming numeracy focus which is Multiplication and Division.

Student 2

Year: 1

Language Background: Indian Australian

Student 2 is another high achieving student in all areas of learning in my Grade 1 class. He continuously shows a meta-cognitive thinking approach to his learning and has excellent work ethics. In his home environment, Student 2 is also given support by his family with his education. His mother is a teacher and dedicates several one on one time to help aid his mental computation strategies. Student 2 has completed the Online Numeracy test for Multiplication and Division as a pre-test before we commence our next numeracy focus on Multiplication and Division. He has confidently achieved the following:

- Find the total multiple in a group situation
- Model all objects to solve multiplicative and sharing situations

My rationale for selecting Student 2 as a focus student, is to help him achieve his next growth area in multiplication and division. He has the potential to develop his understanding in these areas and I am committed to helping improve his learning by catering for his individual needs. I will do this through delivering a challenging, engaging and purposeful curriculum, along with appropriate teaching strategies and scaffolding his new understandings.

Student 3

Year: 1

Language Background: Australian Indonesian

Student 3 is my Grade 1 student who is predominately in the extended group of students for numeracy. In class he has a good understanding of place value and number knowledge. At home, he enjoys using ICT to support his learning and mid year was currently working at expected Level

according to AusVELS in September. When he completed the Online Numeracy test he has achieved the following growth points:

- Find the total multiple in a group situation
- Model all objects to solve multiplicative and sharing situations

Student 3 has also participated in another multiplication pre-test showing a greater understanding than the mean of the class for multiplication and division. My rationale for selecting this student as a focus student is he is at a similar level of knowledge with Student 2 and Student 4. I believe he needs a more personalised, engaging and challenging curriculum in comparison to the majority of the class to help develop his new potential understandings for multiplication and division.

Student 4

Year: 1

Language Background: Chinese Australian

Student 4 is a high achieving child who is working above expected Level 1 in numeracy for number and algebra. He is predominately in the accelerated group for math's and is excellent at verbalising a variety of strategies used to problem solve various tasks in numeracy. When he completed the Online Numeracy test he has achieved the following growth points:

- Find the total multiple in a group situation
- Model all objects to solve multiplicative and sharing situations

My rationale for selecting Student 4 as a focus child was due to his next potential area of growth for multiplication and division. Student 4 has a similar understanding in multiplication and division as Student 2 and 3, and with a challenging and differentiated curriculum, can achieve greater understanding for multiplication and division.

Context of student learning – factors affecting learning

Student 1 is a highly motivated student who is confident and well supported at home with numeracy. His parents have enrolled him in Kumon. This program is an addition to his school-based studies he undertakes two times per week that explicitly teaches him fluency in mathematics.

In class Student 1 demonstrates being a risk taker and attempts any task. He and will listen attentively to feedback and use this to aid his understanding. After an analysis on AusVELS progression points during report writing day on Friday 13th September 2013, Student 1 is currently working at a Level 3 in Number and Algebra for Mathematics.

Student 2 is working at a Level 2 for Number and Algebra for his AusVELS progression point data. He is a motivated student who is self-reflective and has excellent work ethics. Student 2 enjoys mathematics as his favourite subject and is willing to participate in any experience. At home his family also supports him and his mother is a qualified teacher, who ensures she supports his learning out of school.

Student 3 is working above Level 1 in Number and Algebra for Mathematics. In class he attempts most learning experiences and shows enthusiasm for new tasks. At times, Student 3 lacks confidence and can be discouraged and overwhelmed when he finds a task challenging. In his home contents, his family is extremely supportive and proactive in aiding his learning. Student 3's parents are always encourages Student 3 to be challenged and complete all set tasks for homework.

Student 4 is currently seeing a speech pathologist twice a week at the Primary school. He has been working on his pronunciation of words and has difficulties articulating clearly particular sounds. In his learning he is working at expected Level 1 for Reading and Writing. Student 4 strengths are in numeracy where he is working above expected Level 1 for Number and Algebra. His work ethics are

excellent, displaying autonomous self-motivating attributes. At school Student 4 is very reserved and has had difficulty throughout school forming ongoing friendships due to his lack of confidence. His parents are very supportive at home and ensure they have frequent communication with myself regarding to his progress of learning at school.

EVIDENCE OF PROFESSIONAL PRACTICE FOR FULL REGISTRATION

Prior learning of students based on evidence

In order to assess students prior knowledge of multiplication and division, each student undertook two pre-assessments:

Online Numeracy Interview for Multiplication and Division
Grade One Pre-Test for Multiplication and Division

The following evidence is an actual indicator of student's current abilities and growth areas that were analyzed using SPA data spreadsheets and the Online Numeracy Interview Analysis data.

Student 1

After completing the Grade One Pre-Test for Multiplication and Division, Student 1 can do the following for Multiplication and Division:

- Knows multiple groups of same size
- Represents worded problem using a picture
- Count all to find the collection of multiple groups
- Uses counting pattern to find the total of the group
- Uses repeated addition to solve problem
- Uses the multiplication algorithm correctly to record
- Writes worded problem to match pictures, arrays or repeated addition
- Uses commutativity to solve multiplication problem

Student 2

After completing the Grade One Pre-Test for Multiplication and Division, Student 1 can do the following for Multiplication and Division:

- Knows multiple groups of same size
- Represents worded problem using a picture
- Count all to find the collection of multiple groups
- Uses counting pattern to find the total of the group
- Uses repeated addition to solve problem

Student 3

After completing the Grade One Pre-Test for Multiplication and Division, Student 1 can do the following for Multiplication and Division:

- Knows multiple groups of same size
- Represents worded problem using a picture
- Count all to find the collection of multiple groups
- Uses counting pattern to find the total of the group
- Uses repeated addition to solve problem
- Uses the multiplication algorithm correctly to record

Student 4

After completing the Grade One Pre-Test for Multiplication and Division, Student 1 can do the following for Multiplication and Division:

- Knows multiple groups of same size
- Represents worded problem using a picture
- Count all to find the collection of multiple groups
- Uses counting pattern to find the total of the group
- Uses repeated addition to solve problem
- Uses the multiplication algorithm correctly to record

Learning outcomes for the program of learning

The program of learning is designed to enable myself to provide instructional activities that will provoke and support children towards their next growth area in their learning for Multiplication and Division. At the completion of my Inquiry journey, I would like each of the four student's to achieve the following:

1. An increase in each of their original growth point data for Multiplication and Division, based on their Online Numeracy Interview.
2. An increase in skills achieved based on a post-test for Multiplication and Division.
3. A percentage increase in the skills analysis derived from the SPA data inputted from their Multiplication and Division Post test.

The Learning Outcomes will be assessed at the completion of the unit of work for Multiplication and Division. Each student will have the opportunity to re-test for the Multiplication and Division Online Numeracy Interview and be given the same Grade One Multiplication and Division test.

What will be done for

students who need developing beyond the learning outcomes

- Provide more meaningful and critically challenging tasks
- Differentiate learning according to students needs and abilities to ensure they are moving forward in their learning
- Ensure students receive explicit and timely feedback on their work
- Expose student's to a variety of strategies to show their understanding in multiplication division
- Invite parents to support their child's current learning at school by giving additional learning experience for multiplication and division
- Implement small focus groups for students to learn new content
- Create a learning environment that allows student students to reach their full potential in learning
- Take anecdotal observation notes throughout each lesson to track and inform new learning experiences and their understanding

	<ul style="list-style-type: none"> • Ensure I am flexible and teaching to the students needs rather than following the learning intention and experience only • Use open ended rich learning tasks that develop their skills in working mathematically and aiding their fluency in numeracy • Attend regular meetings with my Mentor Teacher B to discuss students progress and future progression of students learning • Engage in professional conversations with my colleague Teacher C and other colleagues about the learning occurring and catering to students needs and abilities to ensure students are moving forward
<p>students who need support to meet the learning outcomes</p>	<ul style="list-style-type: none"> • Work with student's individually to monitor and scaffold their understanding • Use a variety of concrete and purposeful resources that will aid their understanding • Create a learning environment that is successful for students to reach their full potential in learning • Use other areas of learning such as Mental Maths, to allow for students to develop their understandings • Invite parents to support their child's current learning at school by giving additional learning experience for multiplication and division • Implement explicit whole class and small class focuses that are relevant to their next area of growth • Ensure students receive explicit and timely feedback on their work, highlighting any misconceptions they may have. • Engage students by embedding a daily use of ICT into their learning environment • Take anecdotal observation notes throughout each lesson to track and inform new learning experiences and their understanding • Use open ended rich learning tasks that develop their skills in working mathematically and aiding their fluency in numeracy • Help to build students independence so they are

autonomous and self-motivated learners

- Ensure I am prepared to tailor activities based on students' needs and be flexible within the lessons
- Attend regular meetings with my Mentor teacher B to discuss students' progress and future progression of students' learning
- Engage in professional conversations with my colleague Teacher C and other colleagues about the learning occurring and catering to students' needs and abilities to ensure students are moving forward
- Celebrate and acknowledge student's success to motivate and reward student's for their efforts

EVIDENCE OF PROFESSIONAL PRACTICE FOR FULL REGISTRATION

QUESTION FOR INQUIRY AND PROFESSIONAL LEARNING

'How can I use data to inform, track and improve student's learning in the numeracy focus: multiplication and division?'

I believe the origin of this question is derived from my passion for numeracy and continuing my personal goal as a teacher to engage, personalise and facilitate meaningful learning experiences that are specific to the needs of my students. I will inquire into how I can use data as a diagnostic tool to inform, track and evaluate the student's progress and reflect my own teaching strategies and abilities. This process will help me to revise my practise and strive to understand more fully the impact of my practise on the learning of my students. 'Reflection in the context of learning is a generic term for those intellectual and affective activities in which individuals engage to explore their experiences in order to lead to new understandings and appreciation.' This inquiry question will hopefully lead me in the 'taking action' phase to reflect on my own teaching strategies to see if they are successful and benefiting my students growth. This journey will also benefit student's learning and help them to achieve a deeper level of understanding in numeracy for multiplication and division.

Observing the practice of others

DATE: 20th August 2013

TEACHERS INVOLVED: Teacher D and Teacher A

WHAT WAS OBSERVED?

The lesson that I have observed was a literacy lesson focusing on guided reading. Although the lesson was no entirely appropriate to my focus, which is numeracy, I was observing Teacher D with the intent to watch another teacher model strategies used to engage, challenge and extend students based on their prior knowledge and new areas for learning.

In the lesson, Teacher D had set specific learning intentions for class and ensured they had a focus while she could work with a selected group of students for guided reading. Each child had the appropriate materials and was familiar with the structure and expectations when working in a guided reading session.

To begin the focus, Teacher D asked students to revise what they had learnt and what they were working on in their prior lesson. She encouraged students to explain their thinking and strategies used in reading and why they are important to use.

Throughout the lesson, she individually listened to each student read and had individual conversations with each student, asking them to explain what has happed in the text and where did they find evidence in the text to help them infer and attend meaning. Each student individually recorded in his or her reading response book. On several occasions Teacher D extended students who displayed a higher level of comprehension by asking them to find more than one example in the text and record the pages of evidence used to make inferences. At times, Teacher D used her whiteboard to model to student her thinking and how she would set out her work. At the end of the lessons, Teacher D asked students to summarise what they had learnt in each lesson and the strategies they have been using.

WHAT DID YOU LEARN?

After watching another colleague teach, it has reinforced my appreciation for the value of feedback to students. Giving students timely and meaningful feedback within the lesson helps them to put things right by taking corrective action, reinforcement of positive behavior, diagnose problems with the work so that students can see how to improve, identify a gap between current performance and the standard of expected performance and support improvements in the next assignment and beyond.

It was great to see my colleague teach a small group focus within a lesson and be reassured the remainder of a class can be still working appropriately on a learning task. It is imperative for teachers to give students the opportunity to work on their specific needs and this can be supported through a small group focus.

Within the lesson, Teacher D was able to recognise and discretely extend and enable her students within a focus group just by observing and giving them specific feedback. I have learnt that extending and differentiating does not always needs to be a small focus group, there can be differentiation within a small group and it can be spontaneous.

HOW DOES THIS HELP YOU ADDRESS YOUR QUESTION FOR INQUIRY?

At the conclusion of this lesson I have gained and confirmed my understanding for the important of feedback, having small class focus groups and differentiating. These three aspects of Teacher D's lesson are teaching practices that I have been and will continue to implement into my daily practise to ensure students are reaching student-learning outcomes.

EVIDENCE OF PROFESSIONAL PRACTICE FOR FULL REGISTRATION

Talking to colleagues

Discussion One

DATES: 8th October 2013

TEACHERS INVOLVED: Teacher C (Grade 1 Classroom Teacher)

WHAT WAS DISCUSSED?

After returning from holidays, our team has decided to continue the mathematic hubs for multiplication and division. The conversation was based on the next sequence of learning we should teach. During the conversation we discussed the student's prior learning experiences and knowledge absorbed and what could the next potential learning experiences be for the upcoming lessons. Teacher C and I had a professional conversation about misconceptions our student's had and what skills we wanted them to learn to help consolidate their understanding of multiplication. In the conversation, I had demonstrated by modeling the strategy of 'repeated addition' and how to articulate this strategy to our students. The conversation also incorporated professional readings; we had read and created new learning intentions for the students whilst guiding our understanding for when we are instructional teaching.

WHAT DID YOU LEARN?

At the conclusion of our discussion, I learnt the importance and value of discussing with colleagues when sharing knowledge and lesson ideas. Teacher C and I both are taking the advanced math's group in Grade One and are both sharing the vision of giving our children equal opportunity to learn based on their needs, prior knowledge and future direction. I value the importance of feedback and working collaboratively helps gain new innovative ways to introduce, model and implement similar learning intentions within a classroom. Sharing resources and professional readings also helps to enrich our teaching strategies and ensure we are cohesive within our practice.

HOW DOES THIS HELP YOU ADDRESS YOUR QUESTION FOR INQUIRY?

Engaging in the following professional discussion has directly contributed to my inquiry by improving students learning in multiplication for students B, C and D. This is central to my inquiry: *How can I use data to inform, track and improve student's learning in the numeracy focus: multiplication and division?* Without analysing what is the future sequence of learning and creating meaningful learning intentions and experiences, I would not be able to directly improve student's learning.

Talking to colleagues

Discussion Two

DATES: 5th September 2013

TEACHERS INVOLVED: Teacher B (Executive Leader)

WHAT WAS DISCUSSED?

During my graduate release I informed Teacher B about the following learning experiences and skills we had been focusing on within the mathematics hub for multiplication. Within my class there is a variety of skills and knowledge amongst the students. I explained to Teacher B to learning experiences and samples of work Student 1 has completed. In our conversation I asked Teacher B to provide potential meaningful learning experiences and goals to ensure

Student 1 is being challenged and working towards their next growth area in multiplication. Together we looked at the numeracy resource: Back-to-front MATHS Volume 2 by Tierney Kennedy. Teacher B suggested it was an excellent opportunity to expose Student 1 to worded multiplication stories and encourage Student 1 to write their own stories to solve multiplication situations. We then proceeded to selecting appropriate worded question examples and created a learning intention for the future lesson.

WHAT DID YOU LEARN?

At the conclusion of our discussion, I learnt that it is important to expose students to a variety of learning experiences that allow them to show and explain their understandings in a variety of settings. Teacher B helped me to understand, it is important to give students opportunities to explain and prove they can apply their fluency and skills in a mathematical problem-solving situation. After conducting the lesson, it was interesting to see Student 1 find writing multiplication story problems a challenging task. This feedback has now created new opportunities to work with Student 1 to develop his application of problem solving skills. I will continue to create opportunities for Student 1 to use his mathematical reasoning by exposing him to more problem solving questions over the next series of lessons.

Other professional learning and how it helps you address your question for inquiry

Australian Curriculum, Assessment and Reporting Authority: The Australian Curriculum Mathematics.

The following document has been used to help address my question of inquiry *How can I use data to inform, track and improve student's learning in the numeracy focus: multiplication and division?* The document identifies the mathematics scope and sequence for Number and Algebra and I had used this document to help me select specific learning outcomes for my focus students.

Professional Readings: Van De Walle: Developing meanings for operation Chapter 9

This following resource has provided me with some excellent open ending problem solving questions that I directly used in a multiplication lesson. His textbook has contributed to my understanding of common misconceptions student can make when learning new strategies for multiplication and division. I have then used this knowledge to ensure I explain to students these misconceptions and ensure I am aware and pre-anticipating the common errors my students could potential make in their learning.

Frank Schoonderbeek Mathematics Scope and Continuum: P-7 Number and Algebra

Frank Schoonderbeek's scope and sequence document has also been another valuable resource document I have referred to it throughout my inquiry which has initiated and guided learning experiences I have taught and also been used as a guide for the sequence of learning that has occurred throughout the math's hubs.

Back-To-Front: Edition 2

The following resource has also guided and helped aid learning experiences throughout the unit. I had referred to this text with my colleague Teacher Cand mentor Teacher B , as a tool to find multiplication and division problem solving questions and to promote ideas for upcoming lessons.




Professional Readings Article: Gervasoni, A, 2002. Success in Numeracy Education Strategy. Growth Points that describe young children's learning in the Counting, Place value, Addition & Subtraction and Multiplication and Division Domains , 1, 1-13.




Ann's article is a reading I had read prior to teaching the hubs over the term. I used this article to learn about the stepping stone paths to mathematical understanding. The article has helped to consolidate my understanding of the importance in following a sequence of learning when teaching students a new topic and how to scaffold their understandings. The article describes the learning trajectory as children develop multiplication and division strategies. After identifying the growth points for multiplication and division for my focus students, I used Ann's article to enable me to provide instructional activities that will provoke and support children towards the next growth point in their learning.


EVIDENCE OF PROFESSIONAL PRACTICE FOR FULL REGISTRATION

IMPLEMENTING THE ACTION PLAN

Observation One:
VIT Lesson Observation – Teacher A (H14) 9/10/13
Maths Hubs: Multiplication
Observer: Teacher B

Learning Intention	We are making arrays and recording the repeated addition.	
8:59am – 9:02am	<p>Students come together from other classes to form the hub.</p> <p>Resources (Unifix) already prepared and set up on the table.</p> <p>Anecdotal observation template prepared and ready for use.</p> <p>Students instructed to come in, and prepare their books (ruled pages and date) before they sit down on the floor.</p>	
9:02am - 9:06am	<p>Brief tuning in experience, based on reflecting upon the strategies that have previously been taught to teach multiplication.</p> <p>Students engaged in discussion, clear speaking and listening skills evident – able to explain the strategies that have previously been taught.</p> <p>Good prompting and questioning strategies implemented to draw key features out of students.</p> <p>Moved into a 'fishbowl' at a table, with a small group of children helping Teacher A model the learning experience</p>	
9:06am – 9:12am	<p>Fishbowl at the table. Students from the front row selected to be in the fishbowl, with students on the outside encouraged to contribute – used appropriate behaviour prompts.</p> <p>Discussed with students the idea of a 'misconception' – mistakes that are sometimes made when we haven't really understood the question/looked at it carefully enough/rushed through our answer.</p> <p>Modeled making an array with Unifix at the table – encouraged students to continue to recall their mental strategies i.e. skip counting, doubles, near doubles; before looking specifically at the rows and exploring how it can be seen as repeated addition to prove their answer.</p>	

<p>9:12am – 9:16am</p>	<p>Students returned to the floor to receive specific instructions about the task:</p> <ul style="list-style-type: none"> - Roll and make the ROWS. - Roll and make the number in each row. - Record the repeated addition. - $4 + 4 + 4 + 4 + 4 + 4 = 24$ <p>Prompt about staying task, concentrating on keeping the noise level to a minimum, as it is an individual learning experience. Reminded everyone that if they were unsure of what to do, or felt like they needed another example, to return to the group on the floor with their books (Teacher A beginning with a focus group of children) to work through learning experience as a small group – students returning to tables when ready to begin work independentl .</p>	
<p>9:16am – 9:40am</p>	<p>Gave an initial behavior prompt to some students who did not begin the learning experience on task.</p> <p>With focus group, concentrated on letting students model the task, then discussed the key features of an array and the connection to repeated addition. Students brought up that the array can take a long time to count, Teacher A suggested that students know about a fast way to count collections, which led to the desired response of skip counting and seeing this as another way to display repeated addition.</p> <p>Adjusted learning experience for a student finding the task difficult (counting as repeated addition) and encouraged them to change the structure of their array. Student began to make array vertically, found it much easier to relate the concept to repeated addition.</p> <p>Moved to tables around the classroom to offer individual support including modeling, positive reinforcement etc....</p> <p>Differentiation evident on a needs basis – students asked to re-consider their strategies used to prove that their repeated addition was correct (**next to applicable questions)</p> <p>Some of the prompts/questions included: How do you know that your rows are equal? How could you check? How many do you have altogether? Can you tell me what you think?</p>	 

	<p>What if we added one more row – how would this change your answer?*** How can you show me? Can you count on? What about if you double what you have made? Is four rows just double two rows?*** How will you write that? What would happen if you separated the rows? Would that make it easier to count? Why would you do it that way? Can you explain your thinking to me? Do you remember the misconception?*** (About mixing rows/not making sure that each row is equal) Can you break the array up and use a multiplication fact you already know to help you get the answer?*** (i.e. add a range of multiplication facts together - 8x7 if you don't know the answer to that you might know the answer to 8x5 and then you need to add 2 more groups of 8 etc...)</p>	
<p>9:40am – 9:43am</p>	<p>Students instructed to write the learning intention into their books, and begin to pack up ready for reflection</p>	
<p>9:43am – 9:57am</p>	<p>Reflection as a class began. Students displayed their understanding by working through some examples on the board i.e. making the array, checking that each row is equal, recording the repeated addition in an appropriate way, checking to prove that answer is correct. Introduced rocket writing as a reflection tool: 'Today I found out...' Written reflections shared by a handful of students - prompts about effective speaking and listening when in a group scenario. Books collected for marking and assessment.</p>	

Summary of discussion and actions arising:

After concluding the lesson, Teacher B and I had a debriefing discussing unpacking the lesson implemented. Overall we both agreed the lesson was relevant to all students' potential needs. Throughout the lesson there was a clear focus group for students who needed additional support and there were also explicit moments where I extended students by

exposing them to alternative methods to show their understanding in multiplication. Teacher B said the lesson was very organised with concrete materials ready to use students we given explicit instructions throughout the lesson such as organizing their math's books before they begin the lesson, following instructions of how to complete the learning task and being prompted to record a written reflection. He also commented on my ability to rover around the classroom and see if student's are understanding the task and keeping students who can be easily distracted on task by prompting them to stay motivated in a timely manner. The lesson followed the Western Metropolitan Regional suggested lesson structure, which included a tuning in, whole class focus, student activity and reflection. After the reflection on the lesson, Teacher B and I discussed how to assess the student's overall understanding of multiplication at the conclusion of the unit and we decided tomorrow's potential lesson could be based on given students a multiplication problem solving questions where students show a variety of strategies they know to solve the problem.

Observation Two

Primary School Coaching Reflection

Date: 16/10/2013

Teacher: Teacher A

Class Year One-Math's Hub

Lesson Focus: Division

Teacher B Observing a High Ability Child

Learning Intension: We are learning to create sharing problems and draw arrays to solve them

Success Criteria:

1. Write the sentence in your book
2. Create the worded problem
3. Draw an array to solve
4. *** Record the division fact too! (For students ready for a challenge)

Teacher and Coach Observations:

- Tuning In what are some objects that we share? Can we share any of these equally (Really good vocabulary developments) Ongoing throughout the lesson
- Explicit Success Criteria discussed and a worked example modeled to students
- Identified focus group to begin working with
- Worked with individual students to provide appropriate extensions
- Ongoing positive re-enforcements focused on encouraging to show their thinking
- Be aware of 'giving' the answer to your high ability by asking leading questions need to provide opportunities for students to show reasoning and understandings

What did I do well?

I agree with my mentor Teacher B, in giving the students an explicit learning focus and goal to achieve based on the success criteria. Throughout the lesson I supported their learning by roving and checking students understanding and prompting for addition extensions where appropriate. There was a clear focus group who I worked with and tailored the learning experience to their needs and gave access to appropriate concrete materials such as counters. The tuning in phase building students vocabulary was also appropriate and useful to prepare students for success with the learning task.

What could I do better?

If I was to implement this lesson again, I would be more proactive in asking open ended and leading questions that allow for my higher achieving students to show their reasoning and provide opportunities to show their understandings.

What are you going to do to improve your lesson outcomes?

To improve of my teaching strategies and improving lesson outcomes, I will continue to ask leading questions that facilitate discussion and allow students to show their skills and knowledge. The learning intension and success criteria will be embedded into my daily practise to ensure I am setting explicit goals for students and to ensure they are challenged. To improve my lesson outcomes I am also going to continue to build students numeracy vocabulary in each lesson.

How can I support your teaching and learning?

To support my teaching and learning, Teacher B and myself are going to continually review student's understanding through observing samples of work, discussing potential learning experiences, share resources and knowledge, modelling of teaching strategies and content, observing and giving constructive feedback on my teaching, and working collaboratively through team teaching to build my skills as a teacher.

EVIDENCE OF PROFESSIONAL PRACTICE FOR FULL REGISTRATION

EVALUATING THE EFFECTIVENESS OF PRACTICE

Areas of practice that need to be evidenced

Program of learning is coherent and well structured

Teacher A developed and planned a sequential unit of lessons for her high-ability groups of students. The planning occurred within her team to develop learning intentions, and Teacher A then differentiated her lessons to suit the individual needs of her students, with a particular focus on extending her focus students.

Uses effective verbal and non-verbal communication strategies

Teacher A effectively uses a range of communication strategies in her classroom teaching practice to fulfill a variety of purposes. She communicates using a variety of different cues and has a highly positive rapport with her students. Teacher A actively seeks to engage them through effective questioning, goal-setting, and constant positive reinforcement.

Parent/carers involved in their children's learning

Over the course of the year, as well as during this inquiry, Teacher A has consistently used her time effectively to communicate with parents about a range of issues that have arisen, and worked collaboratively with parents in order to ensure a positive outcome.

Ensures students' well-being and safety

Throughout Teacher A's time at the school, she has displayed a significant commitment to ensuring that her students' wellbeing and safety is upheld as a priority, and she has displayed the appropriate behavior management strategies at a proficient level to ensure that all students in her classroom feel safe. This also includes building relationships with her students to promote a classroom feeling of empathy, respect, and responsibility as per the class-agreed upon Essential Agreement.

Uses strategies to promote safe, responsible, ethical use of ICT

Teacher A consistently incorporates a range of different ICT based resources in her teaching practice, and has promoted a safe and responsible approach to their use in the classroom, using the class Essential Agreement to support and reinforce this approach.

Demonstrates professional ethics and responsibilities

Over the course of the year, Teacher A has displayed a high level of professionalism in both her teaching and organisational responsibilities, and works effectively as a member of the Year One team. Her dealings with her students, their families, her teaching peers, and the wider school community are always courteous and she proactively responds to all reasonable requests in a timely fashion. She is an active participant in her team planning and moderation sessions, and always demonstrates a high level of diligence in her own planning. Teacher A also seeks regular feedback, and is keen to continue her professional growth.

Complies with legislative, administrative & organisational requirements

Teacher A has shown herself to be fully capable of complying with the relevant legislative, administrative and organisational requirements of the various stakeholders, and in particular, this document represents her willingness to work diligently to meet the professional teaching standards at a proficient level as per the requirements of the Victorian Institute of Teaching.

Engages with teaching colleagues, professional networks or the broader community

Teacher A has documented a number of professional conversations, lesson observations, and coaching feedback in relation to her action plan to address the question of inquiry. She also spent considerable time in her team planning meetings working with her colleagues in order to develop a sequential unit of learning based on multiplication and division. Teacher A has worked alongside a teaching partner to plan her lessons based on her stated goal of extending her high-ability students; as well as seeking advice from the school-based Mathematics coach.

Main Menu

Pre-test Sort

Post-test Sort

Growth Sort

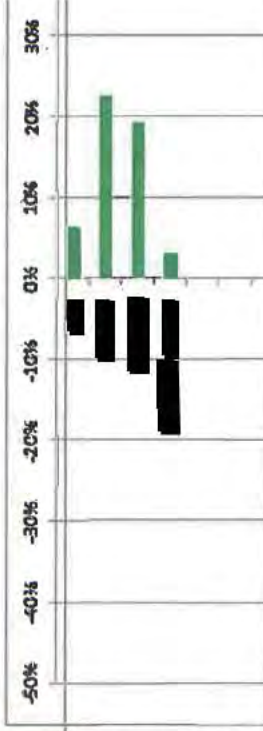
Alphabetic Sort

PRE-TEST - POST-TEST STUDENT GROWTH ANALYSIS

Test: **Yr1: Multiplication and Division**

Pre-test		Post-test		Growth		Effect Size
Total Correct	% Correct	Total Correct	% Correct	Total Correct	% Correct	
18.5	59.7%	22.5	72.6%	4.0	12.9%	1.70

Yr_ Lev	HL	Surname	First Name	Student ID	Pre-test Total Correct	Pre-test % Correct	Post-test Total Correct	Post-test % Correct	Growth Total Correct	Growth % Correct	Effect Size
1	14	[REDACTED]	[REDACTED]	3	20	64.5%	22	71.0%	2	8.5%	0.85
1	14	[REDACTED]	[REDACTED]	5	15	48.4%	22	71.0%	7	22.8%	2.98
1	14	[REDACTED]	[REDACTED]	18	16	51.8%	22	71.0%	6	19.4%	2.55
1	14	[REDACTED]	[REDACTED]	19	23	74.2%	24	77.4%	1	3.2%	0.43



The following evidence is data derived from SPA testing of each focus students Growth Analysis. Each student has improved in their learning outcomes and shown growth after completing a sequence of lessons in Multiplication and Division. Students were given the same Pre / Post test for Multiplication and Division.

PRE-TEST																		
Type test name here.																		
Year One - Multiplication																		
Item Order	Item Difficulty	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Question Number	Item ID	1a	1b	1c	1d	2a	2b	3a	3b	4a	4b	5a	5b	6a	6b	7a	7b	
Question No., Skills Assessed and Answer Key	Item ID	1a	1b	1c	1d	2a	2b	3a	3b	4a	4b	5a	5b	6a	6b	7a	7b	
Skills Assessed:	Item ID	1a	1b	1c	1d	2a	2b	3a	3b	4a	4b	5a	5b	6a	6b	7a	7b	
1a. 3 x 10 = 30	1a	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1b. 30 ÷ 3 = 10	1b	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1c. 3 x 10 = 30	1c	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1d. 30 ÷ 3 = 10	1d	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
2a. 3 x 10 = 30	2a	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
2b. 30 ÷ 3 = 10	2b	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
3a. 3 x 10 = 30	3a	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
3b. 30 ÷ 3 = 10	3b	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
4a. 3 x 10 = 30	4a	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
4b. 30 ÷ 3 = 10	4b	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
5a. 3 x 10 = 30	5a	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
5b. 30 ÷ 3 = 10	5b	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
6a. 3 x 10 = 30	6a	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
6b. 30 ÷ 3 = 10	6b	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
7a. 3 x 10 = 30	7a	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
7b. 30 ÷ 3 = 10	7b	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Student Total	Total	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	

The following evidence is an example of how I have imputed student's data from their pre-test for Multiplication and Division to track student's known abilities and identify their next potential learning goals.

POST-TEST

Type test name here:

ZPP Sort

Item Order Sort

Alphabetic Sort

Year One - Multiplication and Division

Question No., Skills Assessed and Answer Key

Question No.	Skills Assessed	Answer Key
1	Knows multiple groups of same size	1
2	Knows multiple groups of same size	1
3	Knows multiple groups not of same size	1
4	Knows multiple groups not of same size	1
5	Knows multiple groups not of same size	1
6	Knows multiple groups not of same size	1
7	Knows multiple groups not of same size	1
8	Knows multiple groups not of same size	1
9	Knows multiple groups not of same size	1
10	Knows multiple groups not of same size	1
11	Knows multiple groups not of same size	1
12	Knows multiple groups not of same size	1
13	Knows multiple groups not of same size	1
14	Knows multiple groups not of same size	1
15	Knows multiple groups not of same size	1
16	Knows multiple groups not of same size	1
17	Knows multiple groups not of same size	1
18	Knows multiple groups not of same size	1
19	Knows multiple groups not of same size	1
20	Knows multiple groups not of same size	1
21	Knows multiple groups not of same size	1
22	Knows multiple groups not of same size	1
23	Knows multiple groups not of same size	1
24	Knows multiple groups not of same size	1
25	Knows multiple groups not of same size	1
26	Knows multiple groups not of same size	1
27	Knows multiple groups not of same size	1
28	Knows multiple groups not of same size	1
29	Knows multiple groups not of same size	1
30	Knows multiple groups not of same size	1
31	Knows multiple groups not of same size	1
32	Knows multiple groups not of same size	1

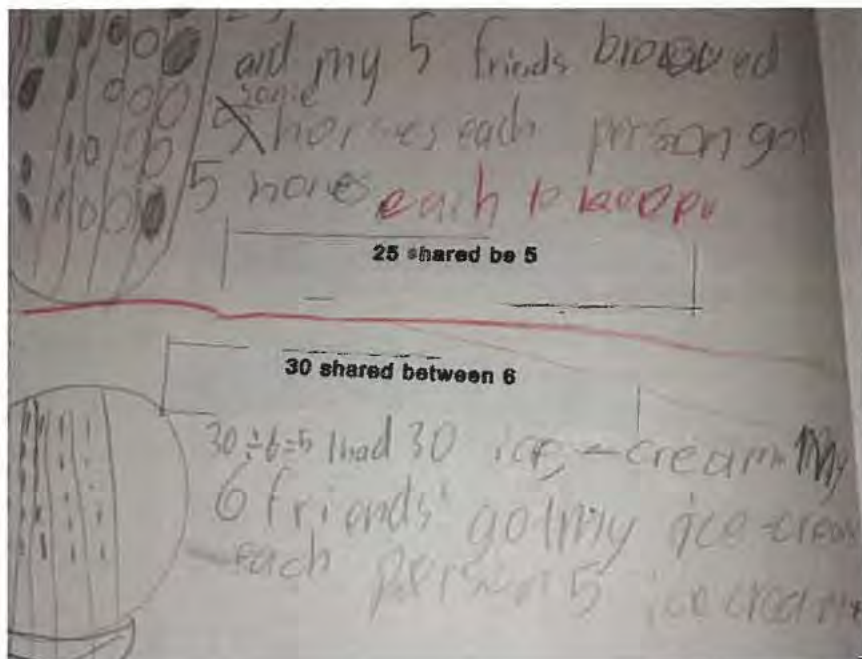
The following evidence is an example of how I have imputed student's data from their post-test for Multiplication and Division to track student's achievements and contribute towards analysing their growth.

H14, H15 & H13 Multiplication and Division pre-test and post test results according growth points													
Knows multiple groups of same size													
Represents worded problem using a picture													
Count all to find the collection of multiple groups													
Uses counting pattern to find the total of the group													
Solves multiplication problem using an array													
Uses repeated addition to solve problem													
Uses the multiplication algorithm correctly to record													
Writes worded problem to match pictures, arrays or repeated addition.													
Uses commutativity to solve multiplication problem													
Identifies relationship between multiplication and division													

Pre assessment achieved: Post assessment achieved:

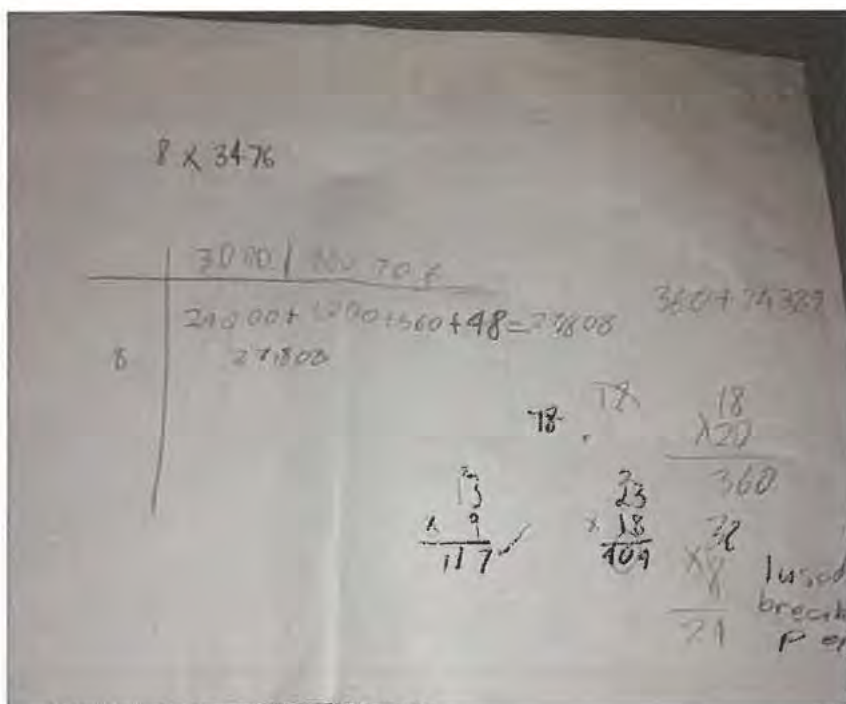
Assessing the learning of students

The following evidence is an evaluation of effectiveness of practice.



Sample of Student 1's work, he was instructed to write division problems and identify and use the appropriate process and strategy to solve problems. In his work, Student 1 has drawn an array to model how he has shared equal amounts.

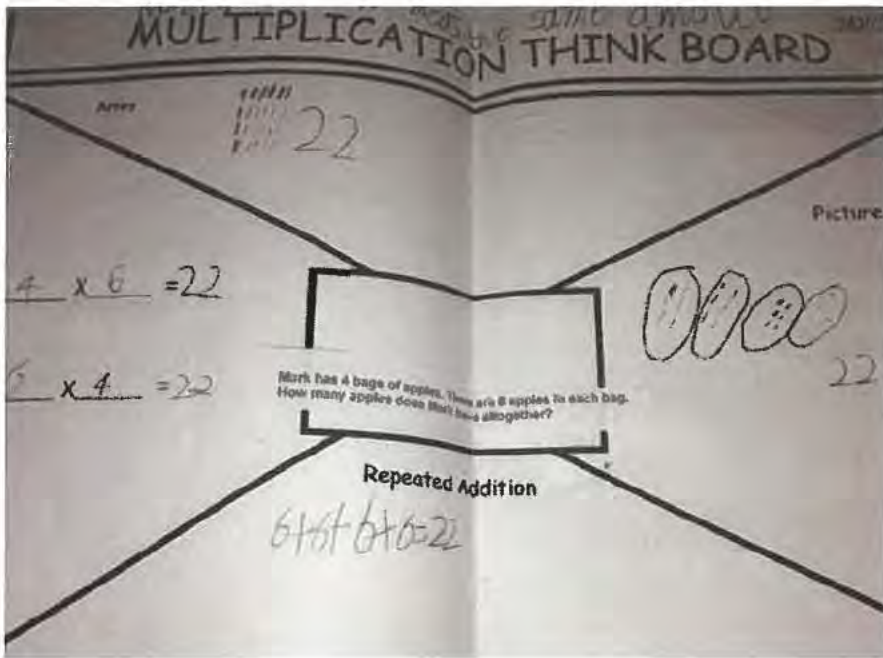
Descriptor 3.3, 1.2



Sample of Student 1's work post unit on multiplication. He is able to expand larger numbers when multiplying by a single multiple and then add these together to find an amount.

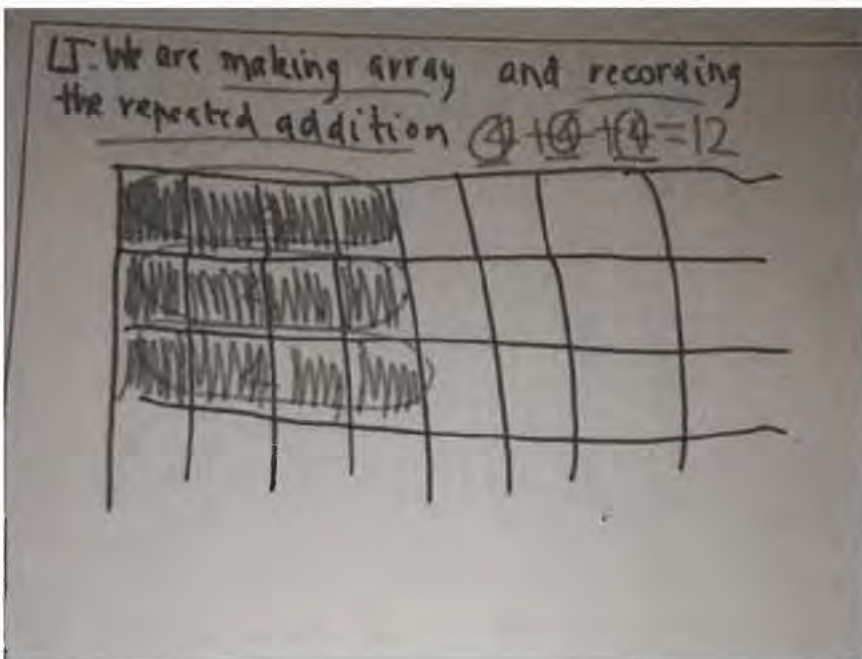
Student 1 is also able to show his ability to solve simple vertical multiplication problems and verbalise the strategies used.

Descriptor 1.5, 1.2, 3.3



At the end of the unit, each focus student was given a multiplication think board to show a variety of strategies such as drawing an array, recording multiplication facts, showing commutativity, drawing a picture and recording the repeated addition. This post assessment was one tool used to assess students understanding of content taught over the past 4 weeks.

Descriptor 3.6, 5.1, 5.4



Descriptor 4.5, 2.6

This is an example of using the IWB as a powerful reflection tool used to print and display student's work on the Numeracy wall in the classroom. Students can refer to the numeracy wall to reflect and prompt themselves of prior learning experiences. I have incorporated this safe and responsible use of ICT to show how it can be used to support learning in a relevant context.

We are learning to make arrays using multiplication facts
10/9/13

$3 \times 4 = 12$	$6 \times 3 = 18$	$8 \times 1 = 8$
$6 \times 2 = 12$	$4 \times 3 = 12$	$4 \times 7 = 28$
$4 \times 5 = 20$	$5 \times 5 = 25$	$4 \times 8 = 32$
$3 \times 3 = 9$	$3 \times 6 = 18$	$5 \times 2 = 10$
$2 \times 4 = 8$	$2 \times 2 = 4$	$5 \times 3 = 15$

Descriptor 2.1, 3.1

The following evidence is a sample of a learning experience resource sheet, used to allow students to model multiplication problems using arrays and recognise the symbols used to represent the operations for multiplication. This resource shows I have knowledge in the specific content need to be taught. I have also consistently used learning intentions to set explicit and achievable learning goals for each student.

5/9/13

We are using problem solving to model multiplication problems using arrays.

H14 had 20 seats. Draw the different ways in an array that these seats could be placed in rows?

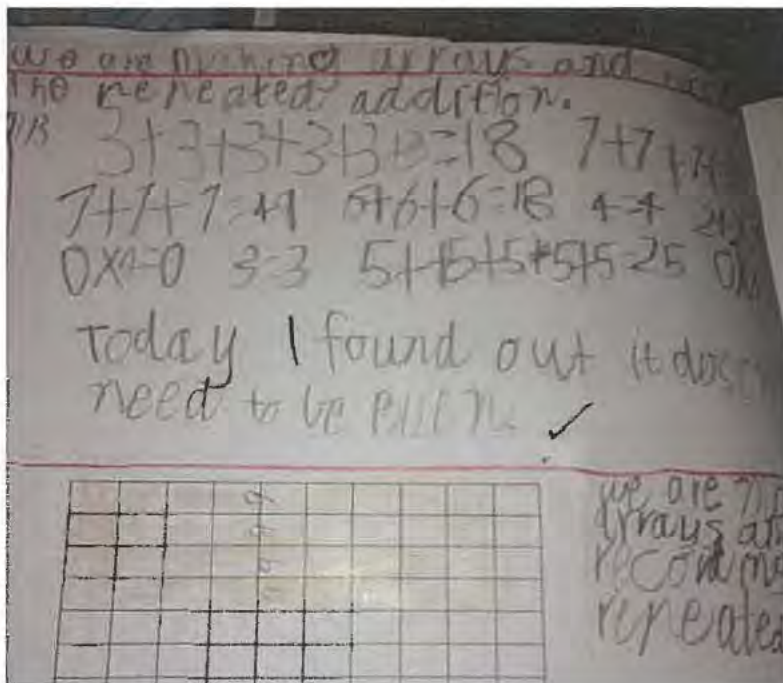
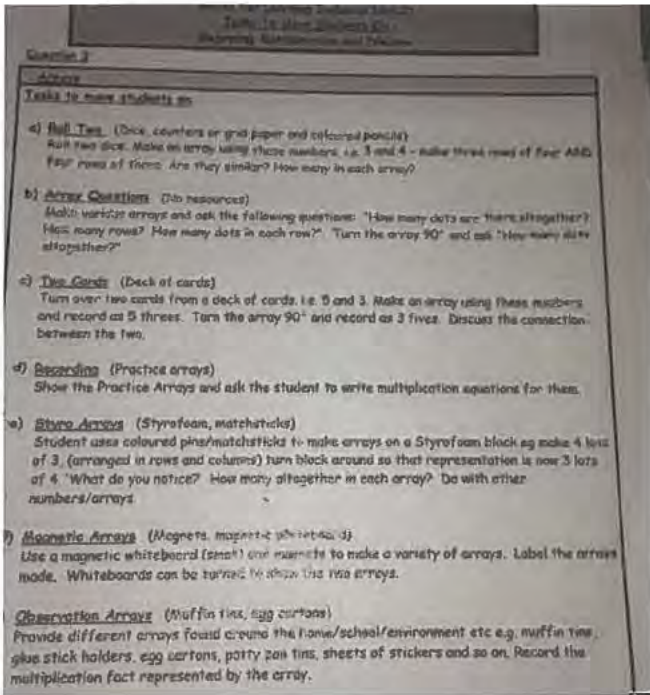
Show your working out

This is an example of Student 1 trying to solve simple real life problems involving \times or \div . He is continuing to develop his skills in applying his mathematical reasoning.

Descriptor 1.5, 2.1, 2.2, 3.3

Descriptor 6.4, 3.2

The following example is a resource derived from the Online Numeracy Test for Multiplication and Division. The resource gives explicit suggested activities to help target each growth point. I have used this resource to help plan learning experiences for the students following a sequence of learning.



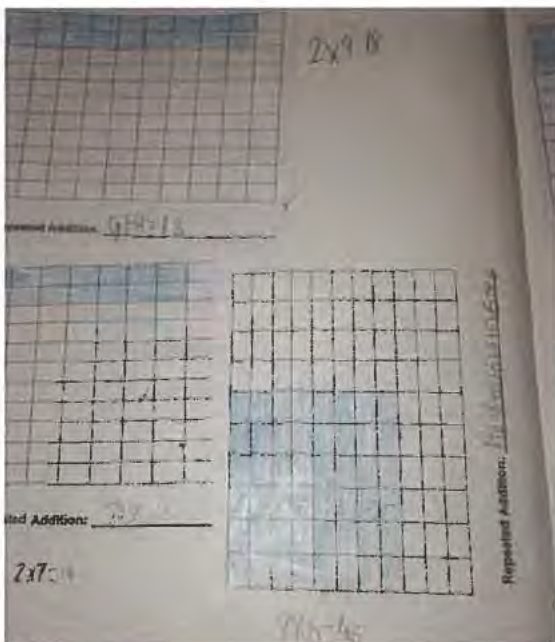
This is an example of Student 4's work throughout the unit. The following evidence highlights how he has shown his ability to use repeated addition or skip counting to solve multiplication problems.

Descriptor 2.1, 2.3, 1.3



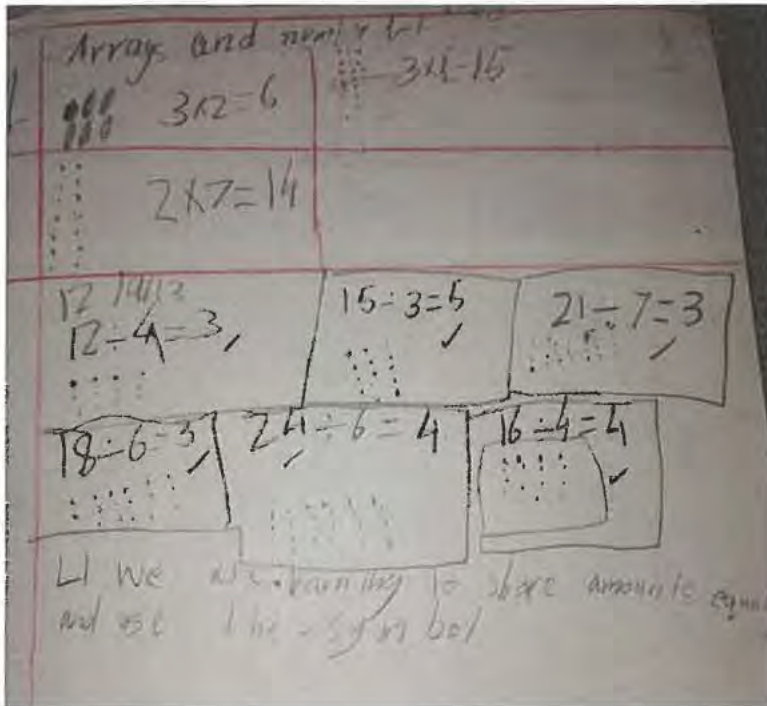
This is a sample of Student's 2 work. In mental maths he was practising to recognise counting patterns, patterns in arrays and in multiplication tables. This activity was implemented during a mental maths lesson. Students participate in a daily routine of mental maths where students time is spent on learning tasks.

Descriptor 4.2



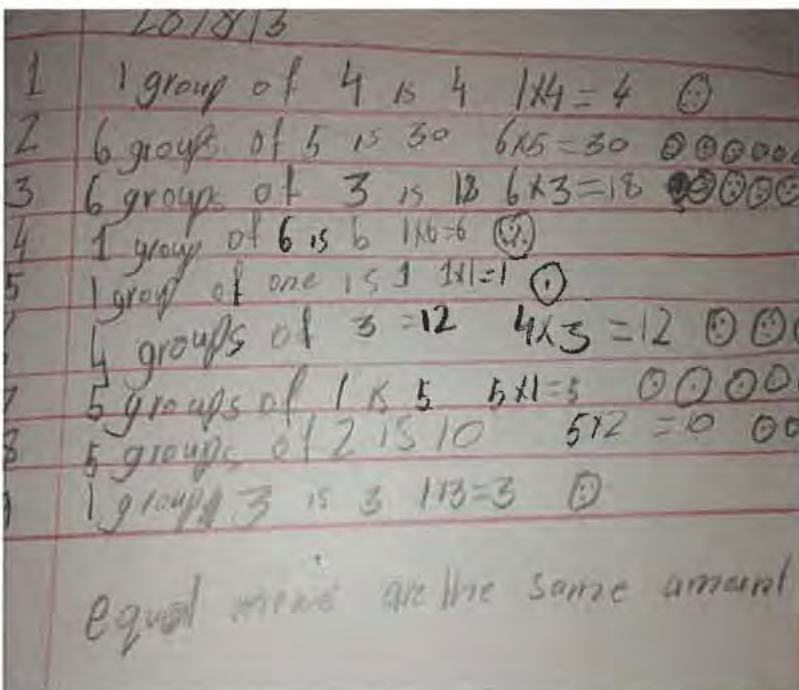
Descriptor 3.5

The following evidence is another sample of Student 3's work. In the learning experience, students were practising to model multiplication problems using arrays and use repeated addition or skip counting to solve the problems. In class, I have used a variety of effective verbal and non-verbal strategies used to support students understanding. This includes: using concrete materials, ICT to annotate and illustrate, grids, number lines, verbal communication and written reflections.



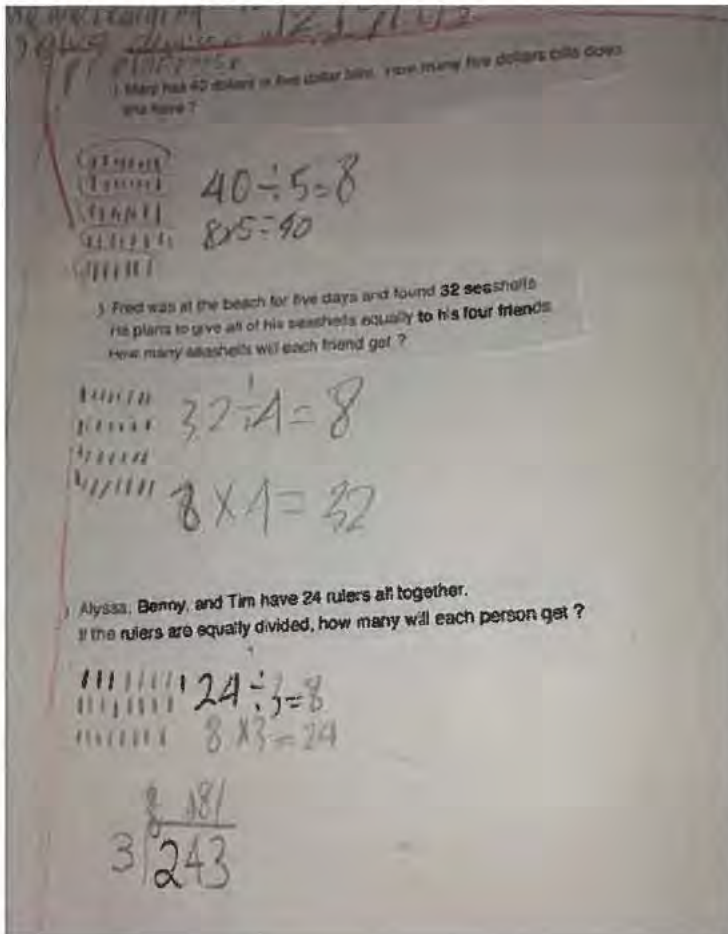
In the following sample of students work, Student 2 is displaying their skills in sharing a group equally to solve a division problem, using related mathematical forms and symbols to everyday language. I believe if a student is being critically challenged and is engaged in the curriculum, I can create an environment that has minimal behavioural issues.

Descriptor 2.1, 3.4, 2.5, 4.3



Descriptor 2.1, 3.4, 2.5

In this example Student 2 is making multiple groups of the same size and using simple counting patterns find the total of multiple groups.



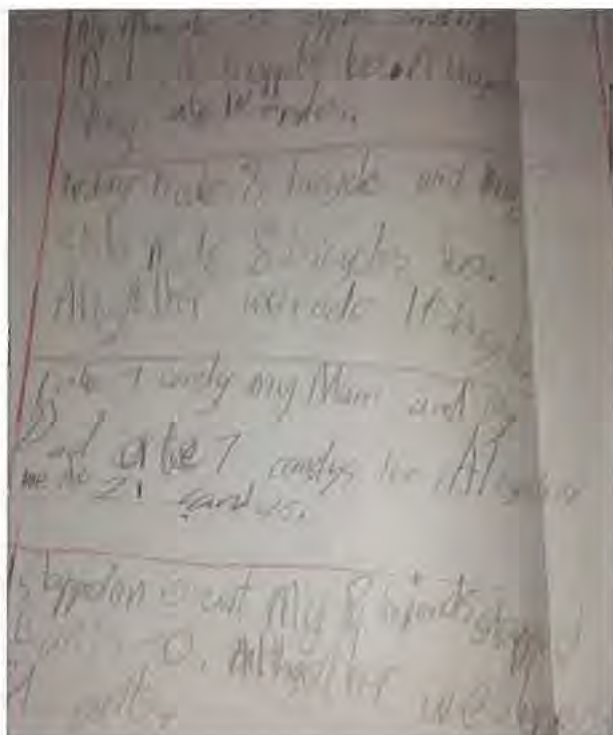
Descriptor 1.5

The following evidence is a sample of Student 1's work. In this learning experience he was required to recognise the relationship between number facts in multiplication and division and solve simple real life problems involving \times or \div .

Descriptor 3.4



The following evidence was a learning experience where Student 1 was required to sort and link the correct multiplication facts to the answers. He is able to show his recall of multiplication facts for $2x$, $3x$, $4x$, $5x$, $6x$ and $10x$. This learning experience is helping to build upon known facts to find other multiplication facts.



Descriptor 2.1, 3.3, 2.5

The following evidence is a sample of Student A's work, he was instructed to write multiplication problems and identify and use the appropriate process and strategy to solve them.

Descriptor 2.3, 5.3, 6.1

Final Growth point summary

ATSI Status: No
Student ID: [REDACTED]
ESL Status: No
Student UniqueID: [REDACTED]
ESL less than a year: No

Student is in first year of school

Highest Growth Point Achieved:

Skill	Number	Growth Point
Counting	19	Know numbers before and after a given number up to 100
Place Value	20	Read, record, interpret and order two-digit numbers
Addition and Subtraction	21	Add and subtract single digit numbers using basic number facts and strategies
Multiplication and Division	26	Model all objects to solve multiplicative and sharing situations
Space	59	Understand some simple everyday location words

The following evidence is a summary of student's online numeracy interview growth point data for Multiplication and Division. This data is has been used to track student progress before and after the unit of work.



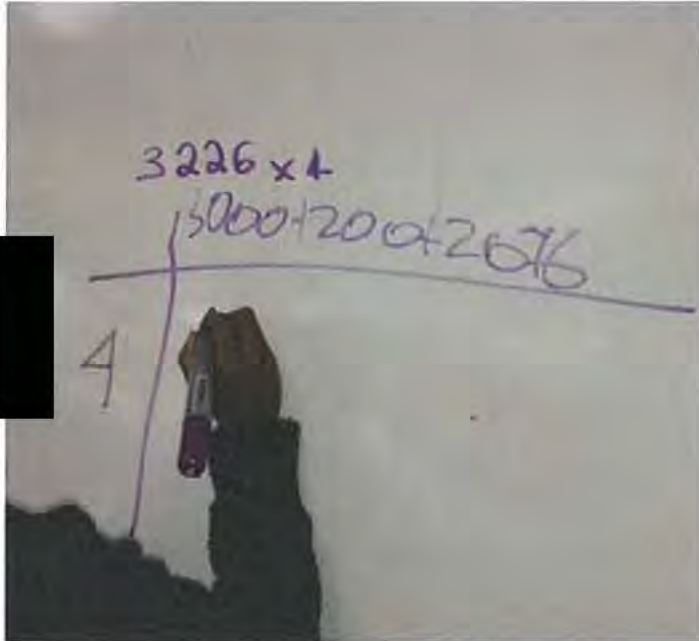
The following evidence is a resource used on the interactive whiteboard to engage and ask open-ended questions to lead student thinking in multiplication and division.

Descriptors 3.4, 2.6, 4.5



Descriptor 4.1, 1.1

The following image is captured of students interacting positively and inclusively in an engaging learning experience. This is a daily practice implemented in my classroom to ensure it is a safe and supportive learning environment.



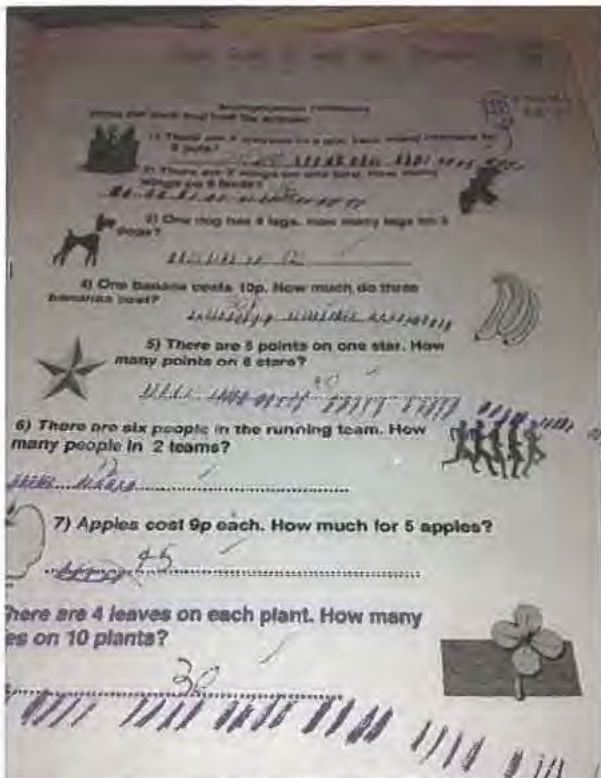
Descriptors 5.2, 1.1

This image is an example of an individual scaffolding experience, where I used my knowledge of how students learn best to improve student learning in a one-on-one teaching moment. In the moment I gave direct feedback to Student 1 to ensure it was relevant and timely with his misconceptions he was having in his learning.



Descriptors 1.6

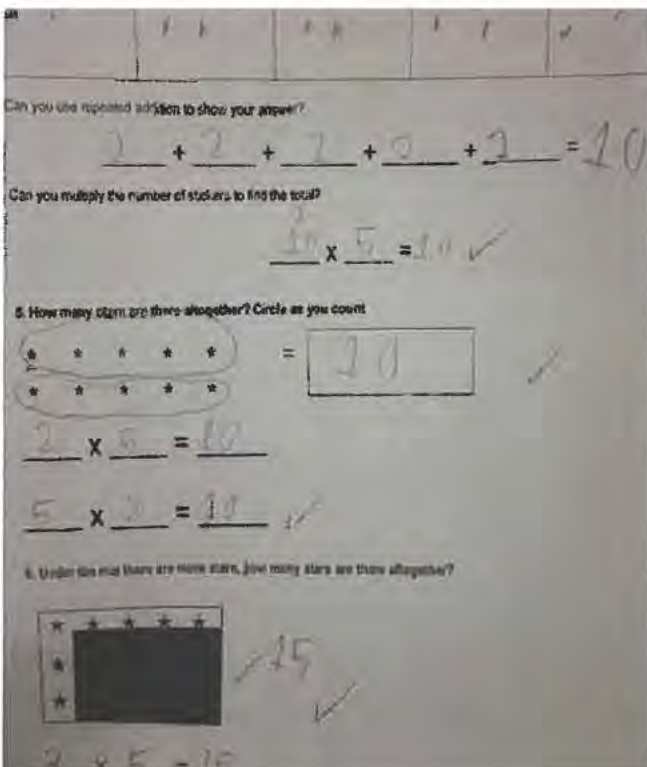
Every day I implement a program that facilitates the design of teaching activities that support and allow for participation for all students. I am continuing to also cater to the individual learning needs and disabilities of each student, I believe this is achieved through effective differentiation.



The following evidence is a homework resource sheet specifically given as additional support for my focus students. This purposeful task helps to inform parents/carers of what their child is currently learning and provides opportunities for parents to work collaboratively with teachers and the child to support their learning.

Descriptor 3.7, 7.3

Descriptors 6.3, 6.2, 6.1



The following image is an example of a selection taken from the Pre-Test implemented for all Grade Ones to assess their knowledge in Multiplication and Division. Each student completed the test and our Grade One team then moderated and analysed our students work to create and place students in a Math's Hub for the upcoming six weeks. Students were placed on similar abilities and we then engaged in professional discussion to plan learning goals for each Math's Hub. Each teacher was allocated a specific group of students and we agreed on our responsibilities for reporting on their progress over the period of teaching. The pre-test was also a tool used to track and inform the potential growth areas.

Descriptors 5.5, 7.2, 7.1

The following evidence is a sample of SPA data imputed based on the Multiplication Pre-test students undertook. Assessment is a mandatory tool used to track and help inform parents and teachers of each child's learning achieved. I have legally and professionally upheld my requirement to take pre, post and ongoing assessment within my role as a classroom teacher.

AusVELS Standards and progression point examples

English - Progressing towards Foundation

Progressive Point 1.1

1.1.1 & 1.1.2 Reading and viewing

1.1.1 Identify the directionality of printed texts (ACELA142.3) Connects to print and screen; describes how word order is significant & important for meaning; for example 'The boy sat on the dog' - 'The dog sat on the boy' (ACELA143) Recognises and makes oral grammar through the actions of the alphabet and identify lower and upper case (ACELA144) Attached to knowledge

1.1.2 Explain how print and image contribute to meaning in texts (ACELA146) Visual language (layout) text, colour, patterns of spacing, for example 'Good luck, a lot', 'A long time ago' - 'Before the Invasion...' (ACELT178) Features of literary texts; uses the features in a list or sequence (ACELT179) Features of literary texts; identifies meaning, word meaning by selecting from a range of information sources and text features (ACELY154) Reading processes

Writing

write spoken sounds and words using letters of the alphabet and punctuation (ACELA172) Spelling and ACELA182 Punctuation

generate new words by changing or base or root (ACELA148) Spelling

use punctuation as the key and for expressing their ideas (ACELA149) Sentences and clause level grammar

write a range of familiar literary texts through performance, use of illustrations or images (ACELT156) Creating literary texts

communicate ideas and events in written texts (ACELY181) Creating text; write; communicate about print in their writing, for example left to right text to print (ACELY181) Creating text

read back from their own writing to check that it communicates what they intended (ACELY182) Editing

produce some lower and upper case letters using learned functions (ACELY163) Handwriting

Speaking and listening

identify sound and tone in one-to-one spoken texts (ACELA149) Pronouns, agreement, contribute ideas to discussions, selecting appropriate vocabulary, and accompanied by some appropriate non-verbal elements, for example gesture and eye contact (ACELY174) Listening and speaking interactions and ACELA147 Vocabulary

talk about stories and culture, showing interest and discussing feelings about what happens in stories (ACELA145) Evaluative language and ACELT178) Expressing experiences and evaluating texts

evaluate the rhythm and sound patterns in a range of stories, rhymes, songs or poems (ACELT178) Language devices in literary texts

review about oral presentations to peers (ACELY194) Oral presentations

ask simple questions in response to information presented by others (ACELY194) Listening and speaking interactions

Progressive Point 1.2

1.2.1 & 1.2.2 Reading and viewing

analyse the directionality of printed texts (ACELA142.3) Connects to print and screen; describes how word order is significant & important for meaning; for example 'The boy sat on the dog' - 'The dog sat on the boy' (ACELA143) Recognises and makes oral grammar through the actions of the alphabet and identify lower and upper case (ACELA144) Attached to knowledge

Writing

write spoken sounds and words using letters of the alphabet and punctuation (ACELA172) Spelling and ACELA182 Punctuation

generate new words by changing or base or root (ACELA148) Spelling

use punctuation as the key and for expressing their ideas (ACELA149) Sentences and clause level grammar

write a range of familiar literary texts through performance, use of illustrations or images (ACELT156) Creating literary texts

communicate ideas and events in written texts (ACELY181) Creating text; write; communicate about print in their writing, for example left to right text to print (ACELY181) Creating text

read back from their own writing to check that it communicates what they intended (ACELY182) Editing

produce some lower and upper case letters using learned functions (ACELY163) Handwriting

Speaking and listening

identify sound and tone in one-to-one spoken texts (ACELA149) Pronouns, agreement, contribute ideas to discussions, selecting appropriate vocabulary, and accompanied by some appropriate non-verbal elements, for example gesture and eye contact (ACELY174) Listening and speaking interactions and ACELA147 Vocabulary

talk about stories and culture, showing interest and discussing feelings about what happens in stories (ACELA145) Evaluative language and ACELT178) Expressing experiences and evaluating texts

evaluate the rhythm and sound patterns in a range of stories, rhymes, songs or poems (ACELT178) Language devices in literary texts

review about oral presentations to peers (ACELY194) Oral presentations

ask simple questions in response to information presented by others (ACELY194) Listening and speaking interactions

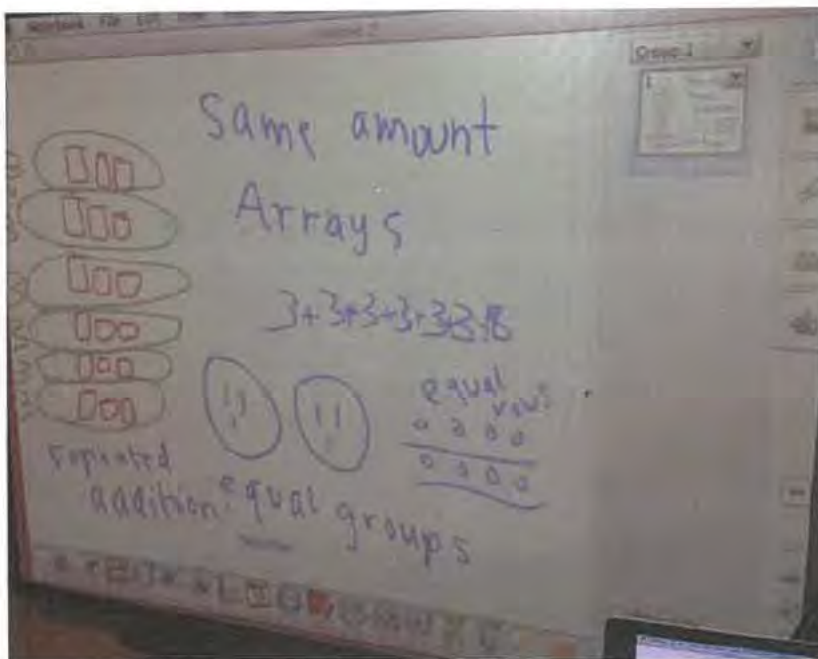
Descriptors 2.2, 7.2, 7.1

The AusVELS progression points resource is used to monitor, assist and track student learning outcomes reached. It is a legal requirement that all teachers report to the AusVELS curriculum and I understand and have complied with the mandatory reporting against these standards and processes. The document is a valuable resource, which also is used in conjunction with Growth Points, Back-to-Front Maths, and Booker's Teaching Primary Mathematics to organise and plan well-sequenced learning and teaching programs.

	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

Descriptor 2.1, 2.2, 3.4, 2.5

The following evidence is an example of another resource used to engage, explain and facilitate purposeful learning and help students make connections.



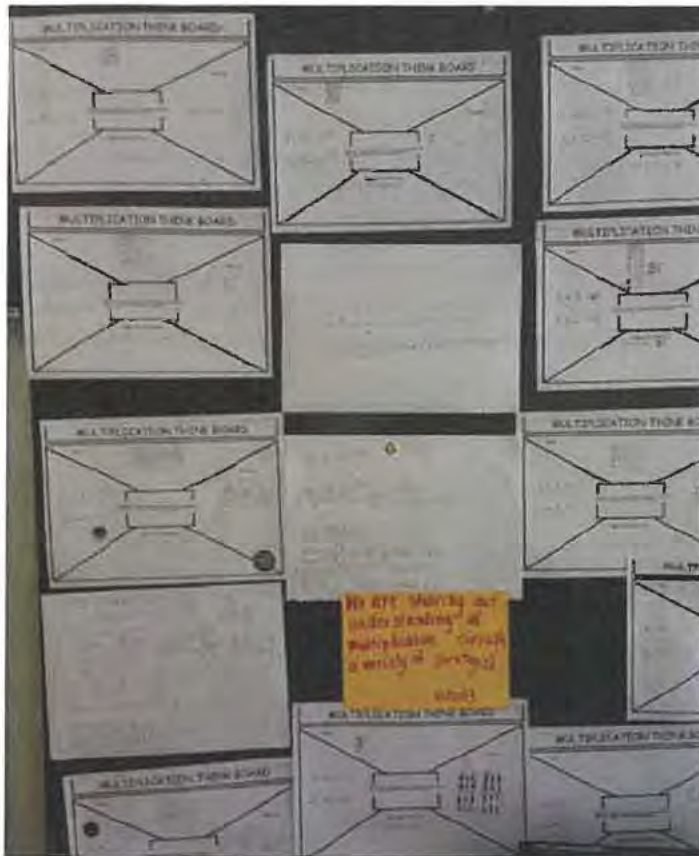
Descriptors 2.6, 4.5

This image is taken during a whole class reflection on our learning task. Reflection is a valuable tool to aid students understanding and I believe I have integrated ICT into a daily use of classroom activities. In this picture the content is relevant and meaningful to the learning occurring.



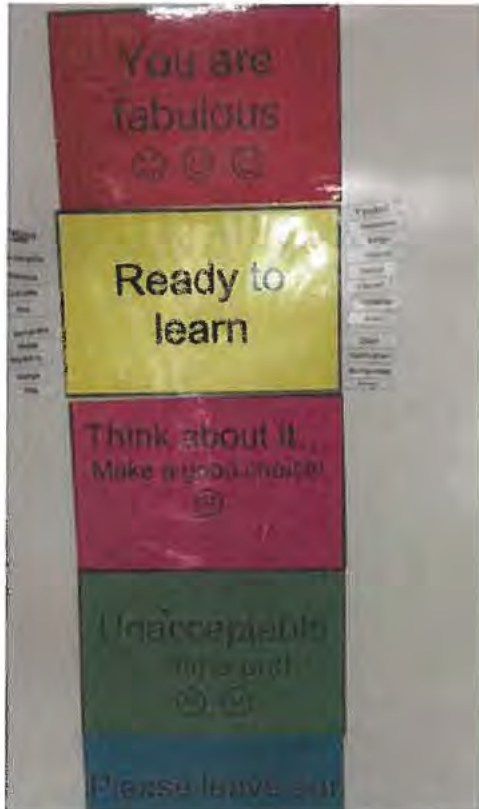
The following image is taken of a resources used with a learning experience. Using this number line to teach repeated addition is an effective teaching strategy used to support student's numeracy achievement. The resource is used to also engage students in their learning.

Descriptor 2.5, 3.4



The following evidence is an example of how I have celebrated student success through displaying their work in our learning neighbourhood. This is an example of engaging with the parents to establish and maintain a relationship, where I am informing their of their child's learning and to help prompt parents to be proactive in their child's learning.

Descriptor 7.3, 3.7



Descriptors 4.3

The following evidence is a behaviour chart used in my daily classroom to manage challenging behaviours. Students are aware of the expectations and I use the chart to address discipline issues promptly, fairly and respectfully.



Descriptors 4.4, 4.3

The following evidence is an example of how I set explicit boundaries for effective learning within my classroom management. This will ensure each student's well-being and safety is addressed and helps to set expectations in an effective classroom environment where students reach their full potential in learning.



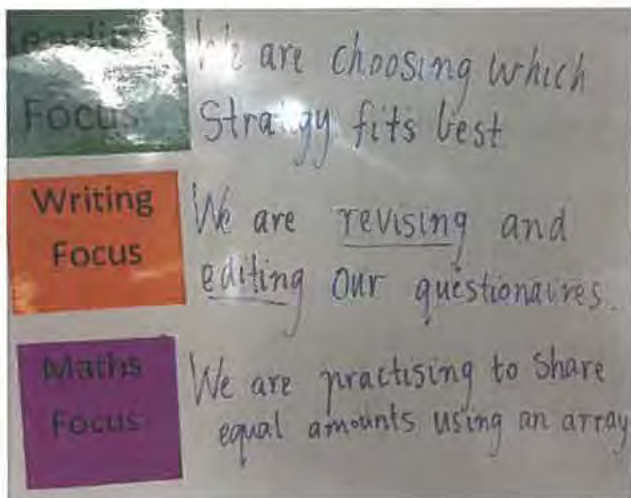
Descriptor 6.3, 2.3, 3.2

Throughout each lesson I recorded anecdotal notes to write observations, track progress, and record and misconceptions students may be having. I then engaged in collegial discussion and gave feedback to the individual student's teachers regarding their progress. The assessment also helped to inform potential future learning experiences and intentions based on their feedback from their understandings.



Descriptor 1.5, 1.6, 1.1, 1.2

This is an example of the numeracy groups used to help differentiate to specific learning needs and how I design and implement teaching activities that are responsive to the individual needs of each student.



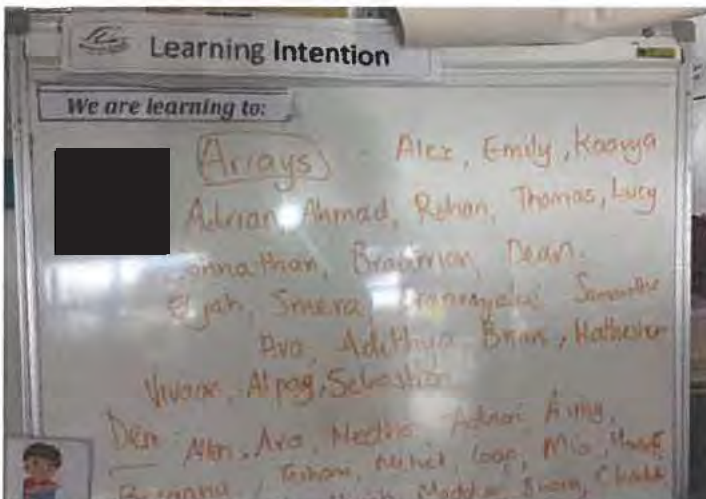
Descriptor 3.1

The following evidence is how I set explicit, challenging and achievable learning goals for all students. Students are always given learning intentions and success criteria to monitor their own progress and to help verbalise their learning.



Descriptors 1.3, 1.4, 1.6

I have used a variety of teaching activities to incorporate differentiation strategies. The following image is a specific task where my focus students were working on their repeated addition skills, and the remainder of the class was working on another learning intention.



Descriptors 6.3, 6.1, 6.2

After the student's data was analysed by classroom teachers, I then engaged and worked collaboratively with my colleagues to group students across our year level based on abilities. We then set learning goals for each Math's Hub.

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STAGE ONE: IDENTIFY DESIRED RESULTS

AusVELS Learning Focus Statement:

Level 1 Skip count by twos, fives and tens starting from zero (ACMNA012)

Level 2 Recognise and represent multiplication as repeated addition, groups and arrays (ACMNA031) □

Recognise and represent division as grouping into equal sets and solve simple problems using these representations (ACMNA032)

Level 3 Recall multiplication facts of two, three, five and ten and related division facts (ACMNA056) □

Represent and solve problems involving multiplication using efficient mental and written strategies and appropriate digital technologies (ACMNA057)

VELS Progression Points

1.25 drawing of diagrams to show sharing of up to 20 items

2.0 They describe and calculate simple multiplication as repeated addition, such as $3 \times 5 = 5 + 5 + 5$; and division as sharing, such as 8 shared between 4.

They use commutative and associative properties of addition and multiplication in mental computation

2.1 Find the total in a multiple group situation referring to individual items only

2.16 Model all objects to solve multiplicative and sharing situations

Growth Points Continuum for Multiplication and Division:

2.1 Find the total in a multiple group situation referring to individual items only

- Make multiple groups of the same size
- Count all to find the total of multiple groups
- Use simple counting patterns to find the total of multiple groups (Repeated addition)

2.16 Model all objects to solve multiplicative situations

- Use repeated addition or skip counting to solve multiplication problems
- Model story situations using objects to solve multiplicative situations
- Create and solve multiplication number stories using concrete materials
- Model multiplication problems using arrays
- Recognise the symbols used to represent the operation multiplication.
- Verify multiplication equations or problems.

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- 3.1 Solve multiplication problems where objects are not all modelled or perceived
- Recognise counting patterns, patterns in arrays and multiplication tables
 - Record multiplication facts using 0, 1, 2, 5, and 10
 - Solve simple real life problems involving multiplication
 - Identify and use the appropriate process and strategy to solve multiplication problems
 - Recognise the relationship between number facts in multiplication

Vocabulary Development:

Repeated addition, groups of, patterns, arrays, multiply, multiplication, times tables, sharing, equal amounts, how many, altogether, groups of, Equations, number sentences, word problems, multiples, factors, product, prime numbers, composite numbers, lots of, algorithm, doubling, halving, patterns, division, sharing, share between, left over, multiply, evenly, remainders, whole numbers, divide, goes into

STAGE 2: DETERMINING ACCEPTABLE EVIDENCE

Establishing Prior Knowledge

Establishing Prior Knowledge

- Numeracy Online Interview- Multiplication/ Mathematics Online Interview
<http://www.education.vic.gov.au/studentlearning/teachingresources/math/interview/moi.htm>

Assessment FOR Learning (Moderated)

Numeracy Online Interview

Grade One Multiplication and Division Test (See Share Drive-Grade One share)

Assessment AS Learning

Anecdotal notes
 Check Lists
 Conferences
 Samples of students work

Assessment OF Learning

Grade One Multiplication and Division Test (See Share Drive-Grade One share) Think Board
 Online Numeracy Interview- Multiplication and Division


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Other Resources:

- Rainforest Math's-
- **Mathletics Times Tables Toons – x2, x3, x4, x5 & x10**
- Brain Pop Jnr **BrainPOP Arrays**
- <http://www.brainpopjr.com/math/multiplicationanddivision/arrays/ Video Clips/IWB>
- http://www.brainpop.co.uk/maths/numberandcalculation/multiplication/http://www.nzmaths.co.nz/resource/arrays-hooray?parent_node=
- http://www.nzmaths.co.nz/number-strategies-units-work?parent_node=
- Online Continuum
- <http://www.education.vic.gov.au/studentlearning/teachingresources/maths/mathcontinuum/number/default.htm>
- E5 Lessons – The Four Operations
- <https://fuse.education.vic.gov.au/pages/View.aspx?id=57ab1537-ede9-4552-9f9c-f1b679b548e3&Source=%252fpages%252fResults.aspx%253fs%252bdivision%2526d%253ddiscipline%25252fmathematics%252d>
- Multiplication think board
- Materials: Counters, Unifix cubes, abacus, hundreds board

STAGE THREE: CONSIDERING INSTRUCTION AND LEARNING EXPERIENCES		
Lesson no/ Curriculum Focus	Warm up	Share / Reflection / Assessment
Lesson 1	Possible Student Learning Experiences	Share/reflection:
• Model multiplicati on	Learning Intention: We are learning to make and record arrays and use inverse order Whole Class Focus: Model two students how two roll two numbers and make equal groups. Show students how to draw this problem and then record as a number sentence eg: 4 rows of 2 are 8.	Create a class reflection of the learning intention and success we had today

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<ul style="list-style-type: none"> problems using arrays Model story situations using objects to solve multiplicative and division situations Use repeated addition or skip counting to solve multiplication and division problems 	<p>Discuss ways to count the arrays</p> 	<p>Student Activity:</p> <p>Use the number two and 1 Dice. Students make the array using counters and record the multiplication facts i.e. in a sentence (4 groups of 2 makes 8), number sentence ($4 \times 2 = 8$) Making Arrays to number stories and show in the reverse order.</p> <p>Extension: Can you write the multiplication fact also</p> <p>POW GROUP: Students roll two dices. They make with counters the 'equal groups' eg: two groups of 4 are 8. Students then draw in their book and record as a worded 'groups of problem.'</p> <div style="display: flex; align-items: center; justify-content: center;"> <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center; margin-right: 10px;">4</div> <div style="font-size: 2em; margin-right: 10px;">X</div> <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;">3</div> </div> <p>To extend students record as a multiplication fact. Eg $4 \times 2 = 8$</p>	<p>on IWB</p>
<ul style="list-style-type: none"> Lesson 2 Model multiplication on problems using arrays Model story 	<p>Show students a picture of an array. Ask them to discuss the ways in which we can count the total altogether</p> <p>Students share</p>	<p>Learning Intention: We are learning to make arrays and record the multiplication fact</p> <p>Whole Class Focus: Discuss with students what an array is. How we can know the groups of and rows?</p> <p>Model to student's efficient ways to count the array. Record this as a sentence and multiplication fact.</p> <p>Teacher questions: Which ones show me the rows, column, How many in each row? How did you count them? Eg 2 rows of 6 is $2 \times 6 = 12$</p>	<p><u>Share/reflection:</u></p> <p>3 facts I learnt 2 things I now know 1 thing I enjoyed</p>

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<p>situations using objects to solve multiplicative and division situations</p> <ul style="list-style-type: none"> Use repeated addition or skip counting to solve multiplication and division problems Recognise the symbols used to represent the operation multiplication 	<p>their answer</p> <p>Student Activity: Student's practise making and drawing the arrays in the books. They record the worded problem such as '___ groups of ___ is ___'. Discuss the efficient counting strategies used to find the total amount eg: skip counting by??</p> <p>Mathushan: Making arrays, showing the commutativity and relationships between numbers. Eg: $5 \times 7 = 35$ is the same as $7 \times 5 =$ (ensure arrays show an understanding of the difference sums)</p>	
<p>Lesson 3</p> <ul style="list-style-type: none"> Model multiplication problems using arrays Model story situations 	<p>Learning Intention: We are practising to make arrays, record the multiplication fact and record the inverse operation</p> <p>Whole Class Focus: Write on the board '3 groups of 4' Ask a student to draw the array. Ask a student using their hand to model where the rows are and count. Now ask them 'How many are in each row' how many are altogether. Repeat.</p> <p>Student Activity: Model multiplication facts through problem solving questions. Understanding the</p>	<p><u>Share/reflection:</u> Ask students to model what they learnt today. Select students who had difficulty to discuss misconceptions eg: rows and how many in each row</p>

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<p>using objects to solve multiplicative and division situations</p>		<p>problem, drawing the array and recording the fact to match.</p> <p>Make with concrete materials arrays and number fact. Show the commutativity.</p> <p>Making arrays and recording the repeated addition and multiplication fact. Use Resource Sheet <u>Making Arrays</u></p>	
<p>Lesson 4</p> <ul style="list-style-type: none"> Model story situations using objects to solve multiplicative and division situations 	<p>Make 3 rows of 4</p> <p>Show with your body how many rows. How many in each row?</p> <p>How many altogether?</p>	<p>Learning Intention: To be able to write number sentences to describe an array</p> <p>Whole Class Focus: Show students IWB resource: arrays and number sentences. Model how to arrange counters in an array and record a number sentence. Discuss commutativity and ask a student to model another way to make and record a number sentence using same amount of counter.</p> <p>Teacher Question: Is the total amount the same? Prove it... How can you show many how many rows there are?</p> <p>Student Activity: Use multiplication chart to recognise counting patterns in arrays. Give image of garden (pictures of plants in several rows and bunces) Create your own worded problems to match the picture and solve. Share with a partner</p> <p>Practise commutativity between arrays. Make, Draw and record to prove the commutativity.</p> <p>making arrays and record the number fact. Once they have shown teacher the array they record in their books.</p>	<p><u>Share/reflection:</u></p> <p>Write a sentence: what is an array, commutativity and repeated addition?</p>
<ul style="list-style-type: none"> Create and solve multiplication / sharing number stories using concrete materials Solve simple real life problems involving multiplication and division 			

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<p>Lesson 5</p>	<p>Tables Grab Have a set of cards with single digit multiplication equations on them (some arrays too) placed on the floor. One player has 20 seconds to say the answers to as many cards as they can, picking them up as they go. Everyone checks the process/answers. The aim is to beat your previous score - go through as many kids as you can</p>	<p>Learning Intention: We are learning to record multiplication facts using triangles</p> <p>Whole Class Focus: Draw a triangle on the floor. Ask students to pick and even number under 20 and record at the top of the triangle.</p> <p>Model drawing an array of the number selected and show students how to count its rows and how many in each row. Model thinking out loud to students and record multiple facts inside the triangle. Repeat</p> <p>Student Activity: [redacted] sorting multiplication facts with the answer up to multiples of 12. Can you find another way to solve facts past multiples of 12 eg: 17x9 is the same as 10x9 and 9x7 added</p> <p>[redacted] Complete triangle facts for the following numbers: 4, 6, 10, 12, 9, 15, and 20. Extension: 24 and 30 (showing as many arrays for both numbers)</p> <p>Pow: complete triangle facts for the following numbers: 4, 6, 10, 12, 9, 15, 20 (Small focus group [redacted])</p>	<p><u>Share/reflection:</u></p> <p>Select students to model the process to the class. Discuss the commutatively law.</p>
<p>Lesson 6</p> <ul style="list-style-type: none"> Model story situations using objects to solve multiplicative 	<p>Warm up: divide in equal groups.</p>	<p>Learning Intention: We are learning to share equal amounts</p> <p>Whole Class Focus: Show students the story ' Jenny was having a party, she has 18 lollies and 6 guests coming and needed to make lollies bags for each guests. How many lollies does she put in each bag?'</p> <p>Model to students how to share equally the lollies for each guest. Introduce symbol of division.</p>	<p><u>Share/reflection:</u></p> <p>Ask students to summarise in 5 words what division means.</p>

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<p>and division situations</p>	<p>Student Activity: students are given a variety of division problems. They use counters to make, share evenly and record their answers.</p> <p>Differentiation: [redacted] write worded problems for each question eg: 20 shared between 5. Find alternatives ways to share the whole amount. Record number fact also using division symbol.</p> <p>Support focus Group: [redacted]</p>	
<p>Lesson 7</p> <ul style="list-style-type: none"> Model story situations using objects to solve multiplicative and division situations 	<p>Learning Intention: We are learning to share equal amounts and record the division fact</p> <p>Whole Class Focus: Model to class a worded problem. Show students how to record the division fact and draw how I share the fact eg: 10 shared between 2. Discuss and repeat with another problem.</p> <p>Student Activity: Students use concrete materials to practise sharing equally total amounts. They record the division problem and show their working out with a drawing.</p> <p>Differentiation: [redacted] worded division problems. Record the division fact, show multiplication link and draw picture.</p> <p>[redacted] with support of teacher</p>	<p><u>Share/reflection:</u></p> <p>3,2,1 facts you learnt. Discuss misconceptions</p>
<p>Lesson 8</p> <ul style="list-style-type: none"> Model story situations using objects to solve multiplicative and division situations 	<p>Learning Intention: We are practising to share equal amounts and model our understanding in an array.</p> <p>Whole Class Focus: Show student how we can share evenly into groups an amount. Model how to now share evenly the same amount in an array and record the division fact. Create a story for the problem.</p> <p>Student Activity: Students work through a collection of numbers to practise. Making groups, arrays and recording the division fact. See if students can write a worded problem for this number fact.</p>	<p><u>Share/reflection:</u></p> <p>Share your findings today. Ask student to model one of their numbers.</p>

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<p>Lesson 9</p> <ul style="list-style-type: none"> Model story situations using objects to solve multiplicative and division situations Model multiplication problems using arrays 	<p>Differentiation: [redacted] division repeated subtraction using number lines [redacted] working with teacher support</p> <p>Learning Intention: We are practicing to make arrays using concrete materials and show the repeated addition</p> <p>Whole Class Focus: Revise with class what is multiplication. What strategies can we use to solve multiplication problems: Eg repeated addition Arrays Commutative law</p> <p>Model to class (fish bowling) using concrete materials how to solve a multiplication problem through making arrays.</p> <p>Record the repeated addition Discuss misconceptions with students</p> <p>Regroup students as a whole and discuss how to complete learning experience today:</p> <ol style="list-style-type: none"> Roll and make the rows (down) Roll again and fill in each row with the SAME AMOUNT <p>Record the repeated addition in your book</p> <p>Student Activity: Students roll and dice and use Unifix blocks to make arrays and record the repeated addition in their books. (Roll 2x dice to get multiplication facts)</p>	<p><u>Share/reflection:</u></p> <p>Ask students to model what they did today.</p> <p>Use reflection tool: Rocket writing and get students to write a written response to the following. Today I found ...</p> <p>Students share their responses. Discuss misconceptions</p>
<p>Differentiation: [redacted] breaking multiplications apart eg: 5x7 is same at 5x3 and 5x4</p> <p>Small Focus Group:</p>		

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	<p>working explicitly with teacher to record-if difficult make equal groups using Unifix blocks and record repeated addition</p>	<p><u>Share/reflection:</u></p> <p>Select students to model what they did in the learning experience today. Print for a reflection tool for the numeracy wall.</p>
<p>Lesson 10</p> <ul style="list-style-type: none"> Model multiplication on problems using arrays Use repeated addition or skip counting to solve multiplication and division problems 	<p>Learning Intention: We are learning to make arrays and record the repeated addition</p> <p>Whole Class Focus: Using IWB engage students in discussion about what does repeated addition mean. Draw a grid of the board and model how to colour and make an array. In each row record how many boxes are coloured. Record the repeated addition. Repeat with another example.</p> <p>Model to students how to use the grid paper to make an array and record the repeated addition</p> <p>Student Activity: Students use a dice to roll and make colour and array. After they have finished the array. Record how many are in each row and then below record the repeated addition.</p> <p><u>Grid Resource</u></p> <p>Ext: [redacted] also record the multiplication fact</p> <p>Differentiation: [redacted] making equal groups and recorded the repeated addition</p> <p>[redacted] using a number line to show the repeated addition process for multiplication facts of 2,3,5</p>	

ROWS/LESSONS TO BE ADDED WHERE NECESSARY

<p>Lesson 11</p> <ul style="list-style-type: none"> Use repeated addition or skip counting to 	<p>Learning Intention: We are using a variety of strategies to show our understanding of multiplication problems</p> <p>Whole Class Focus: Show students the following problem: If apples cost 7 cents each, how much did Jill have to</p>	<p><u>Share Reflection:</u></p> <p>Students record a written reflection: 3, things I learnt</p>
<p>Student Activity: Students use think board to show their understanding and problem-solving skills for a variety of multiplication worded problems.</p> <p>They have access to concrete materials, number lines etc</p> <p><u>Resource</u></p>		

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<p>solve multiplication and division problems</p> <ul style="list-style-type: none"> Solve simple real life problems involving multiplication and division 	<p>pay for 5 apples?</p> <p>Discuss the possible strategies and ways they could solve the problem</p> <p>Model using a think board how to show your working out:</p> <ul style="list-style-type: none"> Eg draw an array Record multiplication fact Repeated addition Draw a picture 	<p>Differentiation: [redacted] the comparisons is unknown</p>	<p>2 enjoyed 1 to work on Facts they learnt about multiplication</p>
<p>Lesson 12</p> <ul style="list-style-type: none"> Model story situations using objects to solve multiplicative and division situations Create and solve multiplication / sharing number stories using concrete 	<p>Learning Intention: We are learning to create division problems and draw arrays to solve.</p> <p>Warm up: Create a list of all the possible things we can share Using IWB shows students: Sharing Equally.</p> <p>Whole Class Focus: Model how to draw arrays or simple pictures to solve a division problem.</p> <p>Discuss rows and how many each columns</p> <p>Select student to model their reasoning</p> <p><u>IWB resource</u></p>	<p>Student Activity: Students use resource: Share equally to prompt them with numbers to write their division problems.</p> <p>They then draw images via an array in their books to show their working out.</p> <p><u>Resource</u> Ext: Record division fact ([redacted])</p> <p>Differentiation: [redacted] worded 2 step problem (Back-to-front math's Book 2)</p>	<p><u>Share/reflection:</u></p> <p>20 words Use 20 words to describe numeracy today – with a focus on correct terms and phrases.</p>

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<p>materials</p> <p>Lesson 13</p> <ul style="list-style-type: none"> Model story situations using objects to solve multiplicative and division situations Create and solve multiplication / sharing number stories using concrete materials 	<p>Learning Intention: We are showing our understanding of division through worded problems</p> <p>Whole Class Focus: Revise the term 'sharing' model to students using IPADS how I can voice record a 'worded division problem' and record the division fact. Show students how to solve this problem through drawing an array</p> <p>Success Criteria: Record a division problem Write the number fact Draw an array to solve</p>	<p>Student Activity: Students use IPADS to show mathematical thinking and reasoning by creating division worded problems. They use paint tools to draw the division fact and array to solve</p> <p>Differentiation: [redacted] using number lines to show repeated subtraction</p>	<p><u>Share/reflection:</u> Students share with another group swapping ipads their stories.</p>
<p>Lesson 14</p>	<p>Learning Intention: We are practising to use the repeated subtraction strategy to divide</p> <p>Using an underline, model dividing by subtracting the same amount until we have shared all amounts equally. Ask students how many jumps did we subtract until we shared the total amount. These jumps are our answer.</p>	<p>Student Activity: Students practise using a number line sharing equal amounts through repeated subtraction. They record their answers in the book.</p> <p>Differentiation: [redacted] using concrete materials to share through and array [redacted]: dividing through drawing upon known multiplication facts.</p>	<p><u>Share Reflection:</u> Students model their understanding to class and write a written reflection. Today I learnt...</p>

EVIDENCE OF PROFESSIONAL PRACTICE FOR FULL REGISTRATION

EVALUATING EFFECTIVENESS OF PROFESSIONAL PRACTICE

Assessing the learning of students:

My inquiry has allowed me to implement a high-quality, meaningful education that has led me to improve the overall performance of student learning outcomes in Multiplication and Division for each student. I have detailed below some evidence which directly links how I have improved the student-learning outcomes over the past 2 months based on analysis of growth point data derived from the student's growth points before and after the unit on multiplication and division and an analysis from of the pre and post test implemented for Multiplication and Division.

The following data is in relation to my four focus students:

Student 1

Online Numeracy Interview: Post Data Growth Point

- Can solve a range of multiplication problems using strategies such as commutativity, skip counting and building up from known facts

Post Multiplication and Division Test:

- Knows multiple groups of same size
- Represents worded problem using a picture
- Count all to find the collection of multiple groups
- Uses counting pattern to find the total of the group
- Uses repeated addition to solve problem
- Draw and array to solve and multiplication and division problem
- Uses the multiplication algorithm correctly to record
- Writes worded problem to match pictures, arrays or repeated addition
- Uses commutativity to solve multiplication problem
- Can solve single digit multiplication problems
- Can solve two-digit multiplication problems

Student 2

Online Numeracy Interview: Post Data Growth Point

- Model all objects to solve multiplicative and sharing situations

Post Multiplication and Division Test:

- Knows multiple groups of same size
- Represents worded problem using a picture
- Count all to find the collection of multiple groups
- Uses counting pattern to find the total of the group
- Uses repeated addition to solve problem
- Draw and array to solve and multiplication and division problem
- Uses the multiplication algorithm correctly to record
- Writes worded problem to match pictures, arrays or repeated addition
- Uses commutativity to solve multiplication problem

Student 3

Online Numeracy Interview: Post Data Growth Point

- Solve multiplication and division problems where objects are not all modeled or perceived

Post Multiplication and Division Test:

- Knows multiple groups of same size
- Represents worded problem using a picture
- Count all to find the collection of multiple groups
- Uses counting pattern to find the total of the group
- Uses repeated addition to solve problem
- Draw an array to solve multiplication and division problem
- Uses the multiplication algorithm correctly to record
- Writes worded problem to match pictures, arrays or repeated addition
- Uses commutativity to solve multiplication problem

Student 4

Online Numeracy Interview: Post Data Growth Point

- Model all objects to solve multiplicative and sharing situations

Post Multiplication and Division Test:

- Knows multiple groups of same size
- Represents worded problem using a picture
- Count all to find the collection of multiple groups
- Uses counting pattern to find the total of the group
- Uses repeated addition to solve problem
- Draw an array to solve multiplication and division problem
- Uses the multiplication algorithm correctly to record
- Writes worded problem to match pictures, arrays or repeated addition
- Uses commutativity to solve multiplication problem

The following data is derived from the Pre/Post Test Student Growth Analysis from SPA after the completion of the Multiplication and Division Unit:

Student 1 made a total growth of 3.2%

Student 2 made a total growth of 22.6%

Student 3 made a total growth of 19.4%

Student 4 made a total growth of 6.5%

When I reflect of the following data, it is excellent to see each individual student has made significant progression in their understandings and skills for Multiplication and Division. Although Student 1's percentage has not increased a large amount, it is important to understand his fluency in mathematics is already excellent and I have a large proportion of the unit developing and focusing on scaffolding his problem solving skills. Overall I am satisfied with the results from the student's and have enjoyed monitoring their understandings and skills develop throughout the journey.

Reflection:

I believe I have strived to improve the overall quality of student-learning outcomes by providing a strategic scope and sequence of learning that is directly linked to student's learning goals. This inquiry journey has allowed me to positively take action and use data to inform, track and monitor, to improve the learning outcomes of the students. Throughout my journey, I have used data to identify student's strengths and weaknesses, change lesson focuses and success criteria's that are tailored to individual student needs. Collecting data has also informed our team on factors that affect student's learning, such as misconceptions and helped to diagnose their weaknesses. During the weeks of instructional practise, I have provided each student with feedback that is timely, specific, well formatted and constructive.

This was made possible because of my ongoing assessment, where I reviewed samples of student work and identified content area and skills that needed to be reinforced. This journey has also re-enforced the benefits of having current understandings of student's progress, in order to provide meaningful feedback that allows student's to track their own performance. Furthermore, the data has facilitated the opportunity to have more enriched conversations with colleagues on student's achievement, through analysing and interpreting SPA data results.

To further develop my practise in using data to inform, track and assess student learning, I would like to undertake more ongoing formal Professional Learning, which would refine my pedagogical understandings. I would also like to utilise my mentors and school environment to enrich my knowledge in developing more pre and post tests for assessment. I can do this by volunteering my time to attend professional learning teams that are optional at the Primary School. I will also continue to read more professional readings to gain knowledge and practise using programs including SPA, as a formal way of tracking and interpreting student results.



*NOTE - This sample does not include reference to Aboriginal or Torres Strait Islander students as this was not a requirement at the time of submission. This could have been addressed hypothetically