

Yrs 7, 8 & 9 Numeracy & Maths at Galen 2017

Why have we adopted a new style of teaching & learning in the middle school years?

- * As a collective, and backed by Ondemand & NAPLAN data, our numeracy growth had not been showing the positive growth we want for our students
- * The use of a 'one size fits all' text book as the sole resource and directive for maths and numeracy education is outdated at the middle school level...
- * *student engagement and attitude to challenges were waning...and math subjects at senior levels were not popular areas of study, which genuinely reduced student options for further study or career based training

The focus is back on student learning!

- Students experience a variety of maths & learning experiences... making the equivalent of:
- *MathsPathway Sessions- up to 5x fortnight –aim of completing 6 modules fortnightly followed by individual testing on those modules fortnightly
- *Whole Class Instruction – 1 per week – ‘old fashioned’ stand & deliver on VicCurric strands, learning rules, formulas & content ‘at year level’
- *Problem Solving- 1 per week – partner classes, blocking, small group, partner, individual
- *Project work- individual, small group, partner classes
- *More access to teacher at individual point of need

Our new format actually means we will spend more time teaching at point of need...

- * **Spotlight or targeted small groups:** Pathways assists us to group students using the strands & concepts students are working on- leading to small group direct teaching and building healthier and more successful learning experiences
- * **Whole Class: both traditional and blocked/streamed groups** will be strand (topic) based, with the main aim to use the most appropriate materials, tasks and resources for the students at that level.
- * **Individual Feedback sessions:** individual feedback is discussed with students after assessments, which helps to inform the teacher's understanding of what the student needs and what needs to be taught or revised. This process also assists students to be self reflective and honest about their work and to think about what they can to do in order to achieve and improve.

Maths Pathway

...like an online textbook but even better!

- * Through extensive **diagnostic** assessments a student's MASTERY of skills and learning levels is identified
- * Modules of work are made available which address the skills at the level the student requires for genuine learning
- * All results, growth, topics, skills, equivalent levels etc are viewable 24/7 to students, staff & families
- * Students complete all work in their Pathways workbook which follows a formal structure
- * Students become resourceful and accountable for their own efforts.
- * Small group and individual instruction is increased c/f isolated 'text book' style learning
- * Reports will be generated at the end of every term and made available through PAM.

Some important considerations of Pathways:

- * The number of modules can be modified by the teacher, in consultation with the student, for valid reasons ie absence, difficulty completing complex modules, etc
- * Maths Pathway accurately reports on the skills and knowledge that a student has mastered. There are many required elements that students must demonstrate in order to be diagnosed as having 'mastered' a skill or level. Our commitment to our students is to focus on the growth, accuracy and genuine academic progress of each individual, not just that they have 'satisfactorily' sat through 'at standard' lessons in year level content.

But what about?

- * **No internet?** Students are encouraged to download their modules and save them to a file on their desktop. Students can also get a hard copy printed out...
- * **They say they're working 'online' and don't need to write it down?** Students *MUST* be working in workbooks- the only online work is during a diagnostic test (these are nearly completed for this semester!) or if they have online questions for their fortnightly test- which they do at school 😊
- * **They say they've got no homework?** Students are required to complete a standard of 6 modules per fortnight- what they don't complete at school becomes their homework... you can check on their homepage to see how many modules they have done and how many they have to do- and cross check with their workbook 😊
- * **Aren't they on their computers all the time?**
 1. Macs will only be used while students are reading their worksheets during designated Maths Pathway sessions.
 2. Individual & small group teaching breaks up the amount of time that students are in front of their Mac during Pathways sessions, as do revision of strand content, games and 'fun' activities.
 3. Whole class instruction, problem solving/ games and project sessions also have the aim of being 'screen free'

Why ‘Problem Solving’?

- * In light of the world we are preparing our students to live, participate and succeed in, we have aligned our learning in the Maths Domain to the Personal and Social Capabilities of the Victorian Curriculum:
- * **Some examples of Level 7 achievement standards:**
- * Students can reflect on the influence of emotions on behaviour, learning and relationships. They use feedback to identify their achievements and prioritise areas for improvement. They initiate and undertake some tasks independently, within negotiated time frames and use criteria to review their work. They reflect on strategies to cope with difficult situations and are able justify their choice of strategy demonstrating knowledge of resilience and adaptability.
- * **Some examples of Level 8 achievement standards**
- * Students can identify indicators of respectful relationships in a range of social and work-related situations. They explain the extent to which individual roles and responsibilities enhance group cohesion and the achievement of personal and group objectives.
- * **Some examples of Level 9 achievement standards**
- * Students demonstrate persistence, motivation, initiative and decision-making through completion of challenging tasks. They evaluate personal characteristics, strategies and sources of support used to cope with stressful situations/life challenges. They analyse factors that influence different types of relationships. They critique their ability to devise and enact strategies for working in diverse teams, drawing on the skills and contributions of team members to complete complex tasks. They develop and apply criteria to evaluate the outcomes of group tasks and make recommendations for improvements.

Problem Solving & Project Tasks

- * By planning and providing a wide variety of open ended and 'real life' scenarios we aim to build our students' ability to apply the skills and knowledge that they gain from direct instruction and formal learning experiences. This process is greatly enhanced when students experience working within different groups and settings, with each experience bringing it's own challenges and benefits.
- * Some of these sessions may be formally blocked with other classes, others may use arranged 'partner' classes and others will be within an individual class.
- * These sessions build a student's confidence to 'have a go', to think creatively, to challenge themselves and to develop that intrinsic motivation for success- to not just 'do' but to 'achieve'.
- * Some of the programs and resources we use in these sessions: Cameos, Maths300, NZ Maths ProblemSolving, AQA, Freefall, 10 Ticks, MasterMaths, MathsChallenge, and many more....

Direct Instruction- never throw the baby out with the bath water! 😊

- * **So basically, most of the major content and facts of mathematics education hasn't changed much in the past couple of centuries/millenia...just ask Pythagoras and his students!**
- * There are formulae and rules which we can still recall as adults (for various reasons!) which we learnt by rote and 'skill and drill' processes- and these time savvy methods still have a valuable place in our students' learning.
- * Teacher initiated explanations, demonstration of worked examples, the practice of writing into rule/data books, shared attempts and building independence and resourcefulness for future years ie production of cheat sheets, showing appropriate working out etc are the direct results of teacher directed practice in whole class, small group and individual settings.
- * The historic notion that students are 'sponges' and just need us – the teachers- to put the information out there and they will soak it up doesn't always work for every student, but for some it works just fine. Our 2017 maths team will endeavour to develop the ability in our students to see purpose and value in a range of learning experiences, and help them to identify and implement their preferred learning style to achieve their goals.