IPM sample- guided support; Measurement and geometrical reasoning (Secondary)

What it is

This resource supports schools when developing their Implementation and Progress Monitoring (IPM). It is an example only. Each school will create their own unique IPM's, to address their specific context and their individual needs.

Target audience

The primary audience for this resource is school principals, executive teams and school staff, as well as Directors, Educational Leadership (DELs) and Principals School Leadership (PSLs). It may also be used by corporate directorates when supporting principals and leaders.

When and how to use

This will be used by schools when developing their IPM's as part of the School Excellence cycle. Principals should review this resource with key school staff to discuss how its contents may be useful in their school's context, and consider how it might inform the development of the school's Implementation and progress monitoring.

Research base

This resource was developed by PSLs, Strategic School Improvement (SSI) and Capability, Implementation and School Excellence (CISE) business units. The research base used was the School Excellence Framework and What works best in practice (nsw.gov.au).

Contact

Email questions or comments about this resource to sparo@det.nsw.edu.au using subject line 'Re: School Excellence resource> < insert name of resource >.

Alignment to system priorities and/or needs: School Excellence Policy (nsw.gov.au), School Excellence Procedure

Alignment to School Excellence Framework: Educational Leadership & School Planning, Implementation and Reporting elements in the Leadership domain

Consulted with: Capability, Implementation and School Excellence (CISE) Team, Principals, School Leadership (PSLs) and Strategic School Improvement (SSI) Team.

Reviewed by: CISE Director, PSL-EV Director, SSI Director

Created/last updated: January 2022

To be reviewed: January 2023

Strategic Improvement Plan:
Implementation and Progress Monitoring
Numeracy – Measurement and geometric reasoning

Secondary School

Implementation and progress monitoring

Strategic Direction 1: Student growth and attainment

Please note: The suite of IPM samples have been designed to provide examples of how universal resources could be embedded within a sequence of activities relative to identified focus areas. This particular sample is one reading/numeracy focus area, however, the sequencing and types of IPM activities in other samples may be of relevance. It is anticipated that schools may select aspects across the different samples and ***tailor a sequence of activities most suited to their individual context and needs****, drawing on the universal resources specific to their focus area. For further support in developing IPMs, DELs and Principals are encouraged to refer to the SIP Implementation and Progress Monitoring Tool. It is also important to acknowledge that the sequence and nature of activities is likely to be modified throughout the year as a result of ongoing evaluation, with analysis and implications informing subsequent activities.*

Initiative	Activity	Resources	Evaluation
Highly effective teaching practices (Numeracy – Measurement and geometric reasoning) **SEF elements** Data Skills and Use **Team** School Leadership Team **When** Term 1, Week 1 **Tracking** **Evidence** NAPLAN R&N Guided data pack, Check-in assessment results, Best Start Year 7 Data, findings from Situational Analysis, internal school performance data and possibly VALID and Best Start Year 7 Data	**1 hour in Week 1** allocated at Executive meeting for School Leadership team to review findings from the Situational Analysis and NAPLAN R&N Guided data pack, Best Start Year 7 Data, Check-in assessment data and internal performance data to identify focus area for numeracy based on school context and teachers': • Knowledge of syllabus documents • Use of evidence-based teaching practice • Programming and lesson planning • Use of assessment data and • Professional Learning **1 hour in Week 2:** The School Leadership team explores the Universal Resources Hub and identifies relevant resources. Suggested resources may include: • Numeracy Guide: Years 3-8 • Understanding Units of Measurement Webpage • Mathematics resources 7-10	Nil.	**Q:** What is our identified need (area of focus) for numeracy for the year? **D:** NAPLAN R&N Guided data pack, Check-in assessment data, Best Start Year 7 data, findings from Situational Analysis and internal school performance data. **A:** Analysis of triangulated data revealed Measurement and geometric reasoning results to be an identified area of need compared to other numeracy areas. **I:** Measurement and Geometric Reasoning to be our focus area for the year.
Initiative Highly effective teaching practices (Numeracy – Measurement and geometric reasoning) **SEF elements** Data Skills and Use **Team** School Leadership Team **When** Term 1, Week 5 **Tracking**	**Activity** **1 hour in Week 5:** School Leadership team facilitate a staff meeting to develop a shared understanding across staff by: • Outlining school focus area(s) • Unpacking relevant data which has led to the identification of Measurement and geometric reasoning as a focus area • Conducting surveys to obtain baseline data of staff confidence and capability • Leading discussions where colleagues work in pairs to reflect on the relevance of focus areas	**Resources** Nil.	**Evaluation** **Q:** How can we establish that all teachers have a shared understanding and commitment to improving students' Measurement and geometric reasoning skills? **D:** Survey results **A:** 55% of Staff outside of the mathematics faculty indicated "not very confident" or less around teaching Measurement and geometric reasoning, particularly for Stage 5 students. 40% of

Implementation and progress monitoring

Evidence Survey results	across their KLAs. The School Leadership team outlines that relevant PL will be provided to support teachers to improve their teaching practice in this area. The School Leadership team participate in Leading literacy and numeracy professional learning in my school (K-12).		staff indicated they did not see a relevance in their KLA area. **I:** Further promotion of the relevance of Measurement and geometric reasoning to Head Teachers and classroom teachers is required.
Initiative Highly effective teaching practices (Numeracy – Measurement and geometric reasoning) **SEF elements** Data Skills and Use Learning and Development **Team** School Leadership Team and Head Teachers/Faculty leaders **When** Term 1, Week 9 **Tracking** **Evidence** MyPL records	**Activity** **Weeks 9 and 10:** School Leadership team to hold individual meetings with Head Teachers/ Faculty leaders to follow up about the potential professional learning opportunities for teachers in their faculty and to unpack data which includes: • Analysis of data from staff confidence surveys and other staff feedback • Discussions to determine how a focus on Measurement and geometric reasoning can be interpreted at a faculty level, contributing to the whole-school focus. All HTs complete Understanding units of measurement PL Course: Understanding units of measurement (3 hours eLearning)	**Resources** Teacher release for HT PL. 8 HT x 0.5 day release each. Approx. $2000. **Funding Sources:** *Initiative* Professional Learning	**Evaluation** **Q:** What is the level of staff confidence around the teaching of Measurement and geometric reasoning both within and outside the Maths faculty and what impact does it have on PL schedule? **D:** MyPL records, HT plans **A:** 90% of HT's completed PL course. HT plans indicated a focus in each KLA. There is a low confidence rating by staff (40%) mainly due to applying across KLA's **I:** All HT's required to complete PL course prior to Term 2, Week 2. Additional time provided next term for executive to plan and review cross-faculty support to increase confidence and understanding.
Initiative Highly effective teaching practices (Numeracy – Measurement and geometric reasoning) **SEF elements** Learning and Development **Team** Head Teachers/Faculty leaders and all teachers **When** Term 2 Week 2 **Tracking**	**Activity** **Week 4:** Release time for Head Teachers/Faculty leaders follow up their Understanding units of measurement PL by: • Allocating time to share and discuss the professional learning with faculty teams with a targeted focus on subject specific approaches to integrating Measurement and geometric reasoning into lesson planning. • Identifying key experts within the faculty who may be able to provide support and expertise to faculty colleagues. • Providing 1:1 feedback on lesson planning to	**Resources** Teacher release for 1:1 with Head Teachers/Faculty Leaders. 40 teachers x 0.25 day release each. Approx. $5000. **Funding Sources:** *Initiative* Professional Learning	**Evaluation** **Q:** What improvements can be identified in lesson plans improved based on feedback from HTs to contain increased focus on Measurement and geometric reasoning? **D**: Pre and post document analysis of lesson plans **A:** 45% of teachers identified as requiring further support in differentiation. 35% of staff identified as requiring further support in data analysis. Feedback from some

Implementation and progress monitoring

Evidence Pre and post document analysis of lesson plans	teachers. • Providing relevant student data to teachers which they can analyse and use to tailor their teaching and learning activities accordingly. • Providing information to teachers on how to complete online PL course if relevant to a teacher's identified area for development: Understanding units of measurement (3 hours eLearning) or Improving reading & numeracy: Measurement and geometric reasoning (MyPL course code NR31673) Additional task related to previous activity implication: HTs work in pairs across KLAs to plan a focus at their faculty level.		teachers through HT's indicated resistance in a focus on Measurement and Geometric Reasoning when it did not fit in with the outcomes they were teaching. **I:** Differentiation PL required (Added to Term 4, Weeks 1-6). Data analysis modelled by HTs (Term 3 Weeks 1-2). Implement a "Do Now" routine for all faculties where every teacher begins their lesson with a settling 5-minute activity ("Do Now") with a focus on Measurement and geometric reasoning.
Initiative Highly effective teaching practices (Numeracy – Measurement and geometric reasoning) **SEF elements** Learning and Development **Team** Classroom Teachers **When** Term 2, Week 8 **Tracking** **Evidence** Planning notes and feedback	**Activity** Classroom teachers action feedback provided by Head Teachers/Faculty Leaders in 1:1 session. Teachers: • Review feedback and outcomes from lesson planning and refer to relevant data provided by Head Teachers/Faculty Leaders to ensure lesson plans meet the identified needs of all students. • Revisit What Works Best 2020 with a particular focus on Collaboration, Explicit Teaching and Effective Feedback. • Explore the Universal Resources Hub to see if any are relevant activities to be incorporated into lesson plans such as: ○ Laying Floor Tiles ○ Designing a vegetable garden ○ Rainwater tanks ○ Giving directions ○ Spatial Reasoning: Right Angles (reSolve) ○ Time: Mission Control to ISS (reSolve) ○ Do supermarkets lie ○ Garden path ○ Order on the court	**Resources** Nil.	**Evaluation** **Q:** Has there been an increase in the % of staff receiving feedback routinely from head teachers and is it driving improvements in staff capabilities and confidence? **D:** Planning notes and feedback **A**: "Do Now's" collected from all faculties show that there is an uptake in Stage 4 and 5 teachers using data to plan activities. **I:** Accountability for all faculties embed "Do now's" in Stage 4 and 5 with a focus on student data. Head Teachers focus on data-informed practice in lesson observations and feedback in Term 3 Weeks 1-2.
Initiative Highly effective teaching practices (Numeracy – Measurement and	**Activity** Classroom teachers analyse relevant data and implement lesson plans to:	**Resources** Nil.	**Evaluation** **Q:** To what extent are teachers

geometric reasoning) **SEF elements** Curriculum Effective Classroom Practice Assessment Data skills and use **Team** Head Teachers/Faculty leaders and Classroom Teachers **When** Term 3, Week 1 **Tracking** **Evidence** Lesson observations, student assessment data	• Engage students in tasks and learning experiences related to Measurement and geometric reasoning that allow them to practise what they are learning. • Use relevant data to differentiate Measurement and geometric reasoning content to meet students at their point of need, including adjustments to support learning or increase challenge. • Implement activities which assess students' knowledge and understanding in Measurement and geometric reasoning. Head Teachers/Faculty leaders engage in classroom observations and provide feedback to improve professional knowledge and practice.		implementing Measurement and geometric reasoning strategies? **D:** Lesson observations, student assessment data **A:** Measurement is evident in sample assessment tasks from HSIE, science, PDHPE and mathematics. Lesson observations indicate some staff require further support in applying adjustments to learning. Two faculties have developed cross-curricular projects to design engaging learning experiences in measurement. **I:** All faculties required to embed measurement in assessment tasks. HT's to identify staff to participate in Curriculum planning K-12 professional learning in Term 4 to support wider practice of differentiation.
Initiative Highly effective teaching practices (Numeracy – Measurement and geometric reasoning) **SEF elements** Data Skills and Use Assessment **Team** Head Teachers/Faculty Leaders and Classroom Teachers **When** Term 3, Week 6 **Tracking** **Evidence** Survey results, formative assessment data	**Activity** Head Teachers/Faculty Leaders conduct surveys to obtain data to capture baseline data of staff confidence and capability around the explicit teaching of Measurement and geometric reasoning. **1 hour allocated in Week 6 at staff meeting:** Classroom teachers review formative assessment data in relation to students' knowledge and understanding of Measurement and geometric reasoning and identify further adjustments required to teaching and learning programs for Term 4.	**Resources** Nil.	**Evaluation** **Q:** How can we determine that staff confidence and capability around Measurement and Geometric Reasoning has changed due to whole school PL and explicit teaching focus? **D:** Survey results, formative assessment data **A:** 35% of staff indicated "not confident" or less- an improvement of 20%. There was a decline in staff response of teaching measurement is "not relevant" from 23% to 12%. Formative assessment data indicates conversion of metres to millimetres is still an issue for 43% of students (improvement of 18%). A moderate improvement of area and perimeter with 37% of students incorrect (down from 43%). 68% of Stage 4 students could not multiply and divide decimals for area calculations. **I:** Teaching focus next term to include

Implementation and progress monitoring

			area and perimeter in “do now’s” and lesson activities.
Initiative Highly effective teaching practices (Numeracy – Measurement and geometric reasoning) **SEF elements** Curriculum Effective Classroom Practice **Team** Classroom Teachers **When** Term 3, Week 8 **Tracking** **Evidence** Document analysis of lesson plans	**Activity** Classroom teachers review lesson plans for Term 4 to embed identified focus in Measurement and geometric reasoning. Classroom teachers review the Universal Resources Hub to see if any are relevant and contain faculty relevant resources which can be incorporated into lesson plans: ○ Estimating Australian areas ○ Understanding area ○ Investigating area ○ Classifying angles ○ Measuring a rectangular prism ○ Identifying 2D shapes ○ Net exploration- cube ○ Designing food packaging ○ 3D solids and their nets	**Resources** Nil.	**Evaluation** **Q:** What % of Term 4 lesson plans display an improvement by containing an appropriate focus on Measurement and geometric reasoning? **D**: Document analysis of lesson plans **A:** HSIE adapted the ‘Rainwater tanks’ activity in their Stage 5 “sustainability” topic. TAS adapted the Laying Floor Tiles activity to Stage 4 Design and Technology project. Differentiation in Stage 4 D&T was not always evident in document analysis. **I:** Follow up with faculties to determine the success of their plans.
Initiative Highly effective teaching practices (Numeracy – Measurement and geometric reasoning) **SEF elements** Curriculum Effective Classroom Practice Assessment **Team** Head Teachers/Faculty Leaders and Classroom teachers **When** Term 4, Week 1 **Tracking** **Evidence** Lesson observations, student assessment data, MyPL	**Activity** Classroom teachers implement lesson plans and: • Engage students in tasks and learning experiences related to Measurement and geometric reasoning that allow them to practise what they are learning. • Differentiate Measurement and geometric reasoning content to meet students at their point of need, including adjustments to support learning or increase challenge. • Implement activities which assess students’ knowledge and understanding in Measurement and geometric reasoning. Head Teachers/Faculty leaders conduct classroom observations and provide feedback to improve professional knowledge and practice. Based on document analysis: Curriculum planning K-12 professional learning	**Resources** Nil.	**Evaluation** **Q:** What are the main improvement and future development areas for staff in implementing Measurement and geometric reasoning strategies **D:** Lesson observations, student assessment data, MyPL enrolment **A:** Lesson observation data for HSIE, PDHPE, mathematics and TAS indicates an increased measurement focus in their “do-now” activities. Assessment tasks in HSIE, PDHPE and mathematics include a measurement focus. 12% of staff have completed the Curriculum planning K-12 professional learning PL- out of 42% of staff that were identified as requiring further PD. **I:**
Initiative Highly effective teaching practices	**Activity** Head Teachers/Faculty leaders design survey to obtain	**Resources** Nil.	**Evaluation** **Q:** Have teachers enhanced their

Implementation and progress monitoring

(Numeracy – Measurement and geometric reasoning) **SEF elements** Data Skills and Use **Team** Head Teachers/Faculty Leaders and Classroom teachers **When** Term 4, Week 7 **Tracking** ○ ○ ● **Evidence** Survey results	data to compare against baseline data of staff confidence and capability around the explicit teaching of Measurement and geometric reasoning. **Week 7 staff meeting:** Classroom teachers to complete a survey to ascertain whether staff's confidence and capability in enhancing students' Measurement and geometric reasoning skills has improved throughout the year.		confidence and capability in improving students' Measurement and geometric reasoning skills? **D:** Survey results **A:** 58% of staff indicated "not confident" or less- an improvement of 23%. There was limited change in staff response of teaching measurement is "not relevant" at 12%. **I:** Consistent revisiting of the relevance of measurement in different contexts is still required. 42% of staff still require time and professional development to increase their confidence in teaching measurement.
Initiative Highly effective teaching practices (Numeracy – Measurement and geometric reasoning) **SEF elements** Data Skills and Use **Team** Head Teachers/Faculty Leaders and School Leadership team **When** Term 4, Week 8 **Tracking** ○ ○ ● **Evidence** the year NAPLAN results, Check-in data, Reflect and Reset	**Activity** **1 hour allocated at Executive meetings in Week 8 and Week 9:** Head Teachers/Faculty Leaders and School Leadership team evaluate and review progress against annual progress measure/s. Head Teachers review internal data related to students' skills in Measurement and geometric reasoning against the year NAPLAN and Check-in data to compare against baseline. Executive team refer to the Evaluation Resource Hub and Reflect and Reset resource in order to support this process. Head Teachers/Faculty Leaders and School Leadership team share outcomes from the improvement focus, including impact on teachers' use of knowledge and skills and student learning outcomes.	**Resources** Nil.	**Evaluation** **Q:** To what extent are we tracking our annual reading progress measure and where are our identified areas for improvement this year? What impact have the activities in this initiative had on student understanding of Measurement and geometric reasoning? **D:** the year NAPLAN results, Check-in data, Reflect and Reset **A:** NAPLAN results do not show significant lift in Measurement (48% incorrect in Year 9 this year, compared to 51% incorrect in Year 9 last year). Check-in Data shows some gains with school results closer to state average in all years analysed. **I:** NAPLAN was conducted in May, and it was too early to see long term gains for student outcomes. This should be revisited next year. Check-in Data suggests that Measurement focus has provided some gains for students.