CURRICULUM, PEDAGOGY AND BEYOND









Collaborate to Elevate: Anticipating Student Strategies

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Our Journey

• 2023 Annual Action Plan focus:

- Teachers will implement a whole school pedagogical approach
 in Mathematics
- Professional Learning around the Launch, Explore, Summarise Model
- Term 1: trialled rich tasks in classrooms





Our Challenges

Teachers

- Struggled to cater for all students
- Needing to think on the spot
- Supporting and extending students during the task

Students

- Some struggled to begin independently
- Some struggled with the openness of the task
- Moving past one idea
- Some students were just lost



So what now...

"The first and arguably most critical element of the instructional model is "Anticipate" which is enacted prior to lessons as part of planning" - Peter Sullivan

Sullivan, P., Bobis, J., Downtown, A., Feng, M., Hughes, S., Livy, S., McCormick, M., & Russo, J. (2021). An instructional model to support planning and teaching student centred structured inquiry lessons. *Australian Primary Mathematics Classroom, 26*(1), 9-12.

Our Anticipate Process

- 1. Do the task ourselves and identify mathematical foci
- 2. Brainstorm possible student solutions/misconceptions
- 3. Plan assessing and advancing questions
- 4. Create enabling and extending prompts for differentiation
- 5. Identify key questions to explicitly address the mathematical foci
- 6. Plan a consolidating task



Do the task yourself!

Olivia purchased a new tennis racquet from Rebel Sport. It cost \$35.

How many different money combinations could she have used to buy her tennis racquet?





Discuss

Brainstorm the possible Mathematical foci of the task?



Which foci do you want to emphasise?

Our examples

- I can partition numbers in different ways
- I can add together different money values
- I can identify equivalent money values

Brainstorm possible student responses

Anticipating what students might do in the lesson helps teachers pre prepare ways to support all students towards the mathematical foci of the lesson.

It limits the amount of on the spot thinking that teachers need to do.

We anticipate...

- Possible solutions
- Strategies
- Difficulties
- Misconceptions

Your turn!



Our examples of anticipated solutions

Lack of knowledge of Australian monetary currency

eg \$3 coin, or \$31 and \$4

eg 20c coin is worth more than a \$5 note.

Creates only one solution - does not draw on knowledge of equivalence to create multiple solutions.

May use only notes, not coins

Creates several examples but they are random solutions, does not identify any patterns within the task

Creates an organised list of possibilities using systematic patterning

Assessing and Advancing Questions



Assessing Questions

- Clarifies what the student has done and what the student understands
- Informs the teacher of the students thinking and their strategies

The teacher stays to hear the answer to the question



Advancing Questions

- Uses students current thinking to *prompt progress* toward the mathematical goal of the lesson
- Extends students to think about something they are not currenting thinking about

The teacher walks away, leaving the students to use the advancing question to further their thinking

Our examples of advancing questions

Anticipated solution

Creates only one solution does not draw on knowledge of equivalence to create multiple solutions.

May use only notes, not coins

Assessing Question:

- What have you done so far?
- How do you know you have made \$35?
- What money values have you used?

Advancing Questions

- Can you think of another solution?
- What if you didn't have a \$10 note, what other notes/coins could represent \$10?
- What if I used notes and coins?

When would we use these questions? When would we ask these questions to individual students? When would we ask these questions to the whole class?

Enabling and Extending prompts



Enabling Prompts

The intention is that students can complete the enabling prompt and then proceed with the learning task.

- Provided different form of representation - concrete materials, diagrams etc
- Simplify size of the numbers
- Limit the number of steps



Extending prompts do not change contexts – the prompt still meets the purpose of the lesson

- Increase complexity and size of numbers
- Find multiple solutions
- Identify all possibilities
- Make a generalisation or rule

Your turn!

Our examples Enabling and Extending

Enabling Prompts

- Provide students with concrete materials - Australian coins and notes
- Provide with a money anchor chart
- Change the money value:

Olivia purchased a tennis racquet for \$15. What notes and coins could she have used to pay for her racquet?

Extending Prompt

• Increase complexity by adding restrictions:

I paid with a combination of 7 notes and coins. What could the combinations have been?

Spotlighting and Summarising



During and at the end of the lesson:

What key questions could you use to draw out the learning and connect to the mathematical foci?

Our examples:

- What values are represented within our Australian currency?
- How did you use your knowledge of partitioning to think of different ways to represent \$35.00?
- How did you use your knowledge of equivalence to create different solutions based on your first solution?

Consolidating Task

Consistent Whole School Practice

- Exploring through PLTs and facilitated planning
- Collaborative planning
- Refined our planners to become integrated, and not a separate document

Challenging Task Anticipate Phase				
Session Template	Retrieval:	Independent Learning:		Key questions to draw out the
for challenging				learning:
task	Fluency Task:			
LI:		Enabling Prompt:		Key mathematical ideas to
SC:	Launch Task:			highlight and connect:
I can:		Extending Prompt:		
Anticipated				
solution and				
strategies				
Assessing and				
advancing				
questions				



Any questions?







