

- Demystifying assessment
- What the policies say and what that really means
- Deciding on a grade
- Reader question: Are the proficiencies all equally weighted?
- Student sample work

# The Insightful Classroom

Regular Insights, Tips and Pointers for Australian Maths Teachers

## **The Assessment Issue (part one): Complex Policies Made Simple** enough to learn in your coffee break...and use next lesson

Across Australia, teachers from very different systems are attempting to move towards a unified teaching approach. Yet despite this push towards a national curriculum, there remains a lot of confusion about **when**, **how** and **what** to assess.

Whether at a conference in Queensland, a professional learning session in South Australia or in teleconferenced training in Victoria, the common questions remain the same. You may recognise some of them as your own:

- "How do we make decisions about grades now?"
- "What should we look for in student work?"
- "Are all of the proficiency strands equally weighted and how does content fit in?"
- "How do we decide on a grade when the work is border-line?"
- "What kind of assessment should we be doing and how often is it needed?"
- "How can we make assessment simple enough so that there isn't too much marking without just giving a test?"
- "How can we make sure that the grades are fair between classes?"

There are some **basic principles** that help to clarify this whole issue - whether you come from using criteria sheets, outcomes, marks or VELs. Over the next two issues of *The Insightful Classroom* we will show you what this all means, how to implement the principles required and how to adjust your teaching strategy to incorporate assessment in only a few minutes.

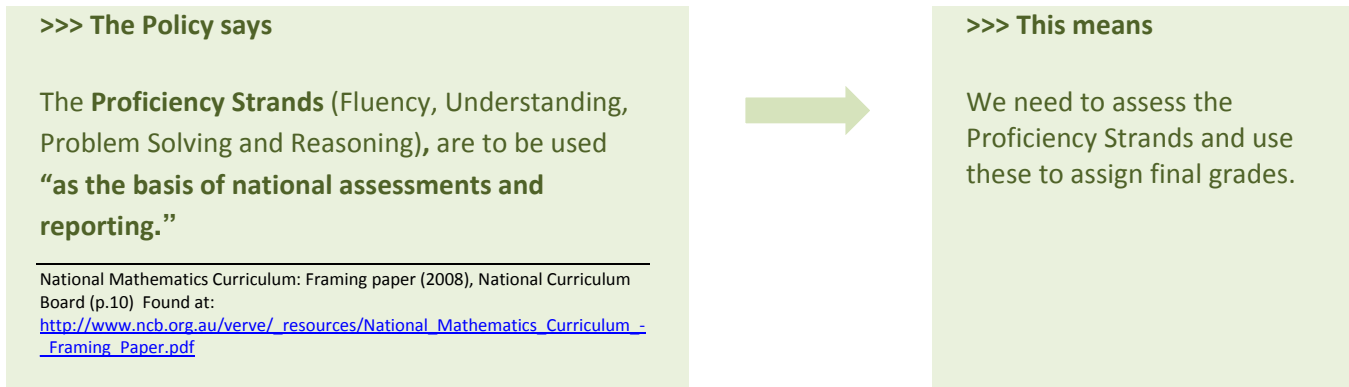
### **Reader Question:** *Are all the proficiency areas equally weighted?*

Not quite. All of the **proficiencies** are equally *important* and are the stated basis for assessment. That is not the same as being equally *weighted*. The Curriculum provides no specific indication for the weighting of the proficiency strands. The idea is that you need to make an on-balance judgement – look at all of the strands and make sure that all of them or nearly all of them reflect the grade that you want to give.

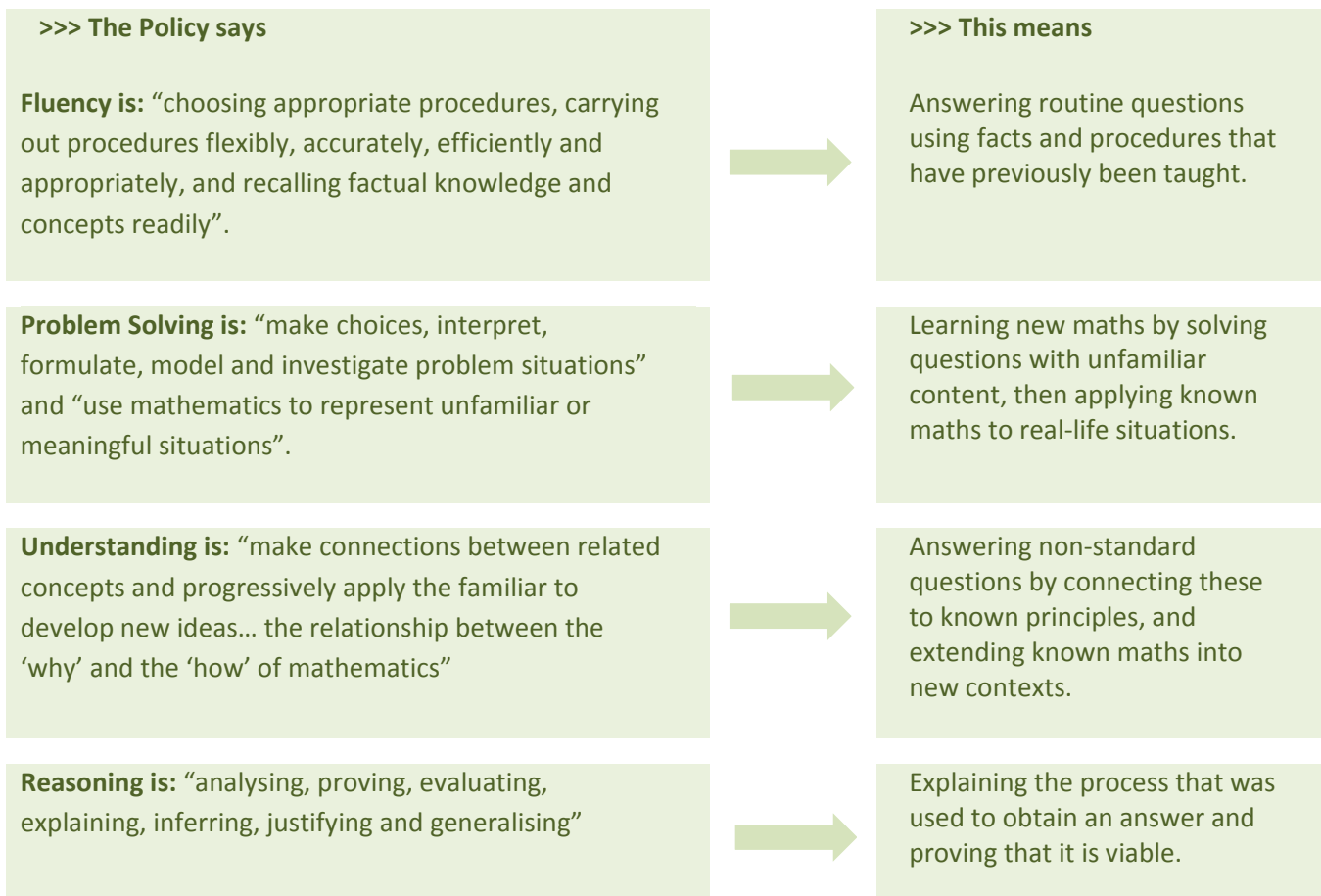
Be careful not to fall into the trap of valuing Fluency above all else. Also be aware that quantities are not much use in any criteria-based marking system – we can't just make each of the proficiencies equal to 25%. This is a *quality-based* rather than quantitative system – the student needs to meet the standard described rather than receive a certain number of "correct" answers. Don't panic, we have provided examples to help explain this further!

## What the policies say... and what that actually means

To get everyone on the same page we need to have a quick look at what the policy documents say and then interpret this into language that is a bit easier to understand.



So, we need to understand what the Proficiency Strands really mean. Let's have a quick look at some key principles for each Strand. If you want to read the full descriptions on the Australian Curriculum website, go here:  
<http://www.australiancurriculum.edu.au/Mathematics/Content-structure>



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**Our next step** is to define what to look for in student work for each of these Proficiency Strands. We won't waste time looking at Fluency, as according to the [Shape paper](#)\*, most teachers have a pretty good idea of what this means already, however we do need to have a good look at the other Proficiency Strands.

\*for specific help with Fluency, please contact the author at [fluency@kennedypress.com.au](mailto:fluency@kennedypress.com.au)

**Deciding on a Grade:**

The following questions will help you to decide on grades using a work sample. Remember that you don't need to grade every Proficiency Strand for each assessment piece – it is fine to have a test that just assesses Fluency, or to use journal problems just for Problem Solving, Reasoning and Understanding. Try using these questions with the student sample work included and discuss the results with your staff.

**Problem Solving:**

Firstly, decide on the type of question being asked.



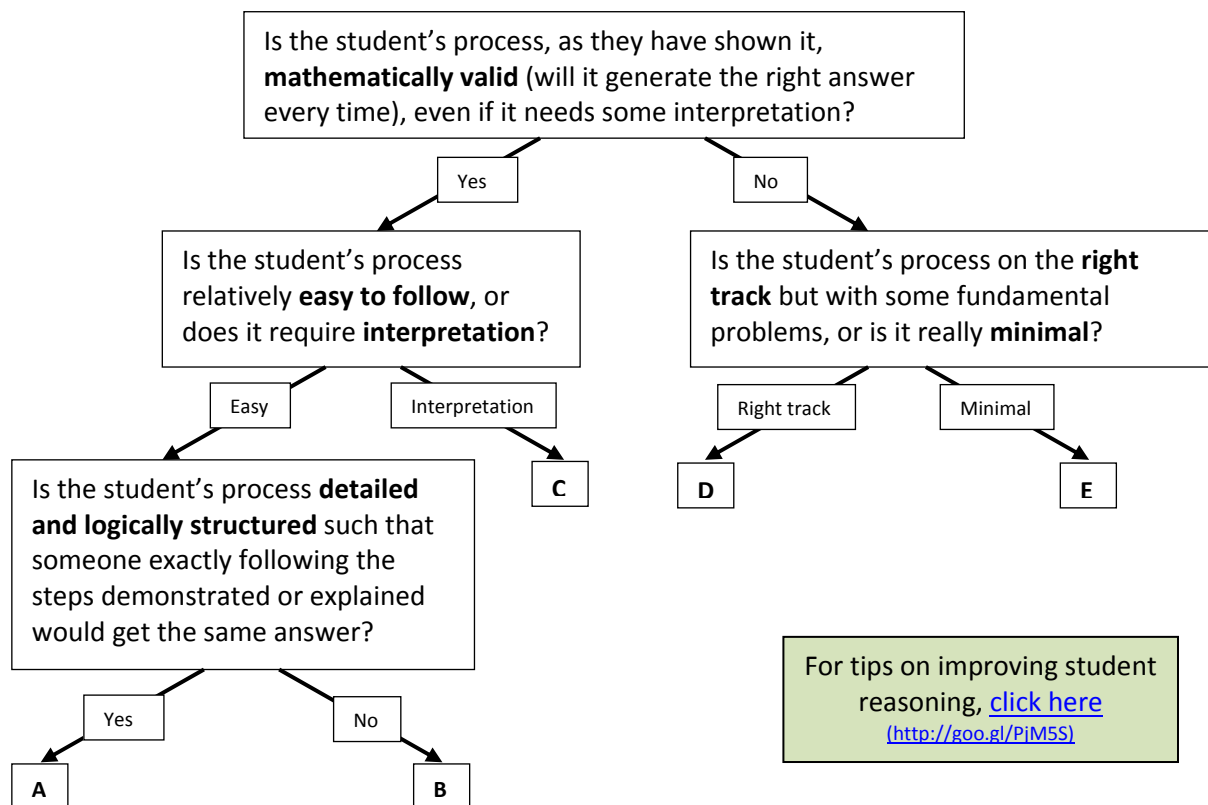
Is the question:	
• Unfamiliar - new maths, not yet taught?	A or B standard
• Application - known maths in a real life context?	C, D or E standard

Secondly, decide which of these descriptions matches the student work:

<b>Unfamiliar Maths</b> - Did the student:	
<b>Invent</b> his/her own new strategies to work out unfamiliar maths?	<b>A</b>
<b>Adapt known strategies</b> to work out some new maths (possibly with teacher leading)?	<b>B</b>

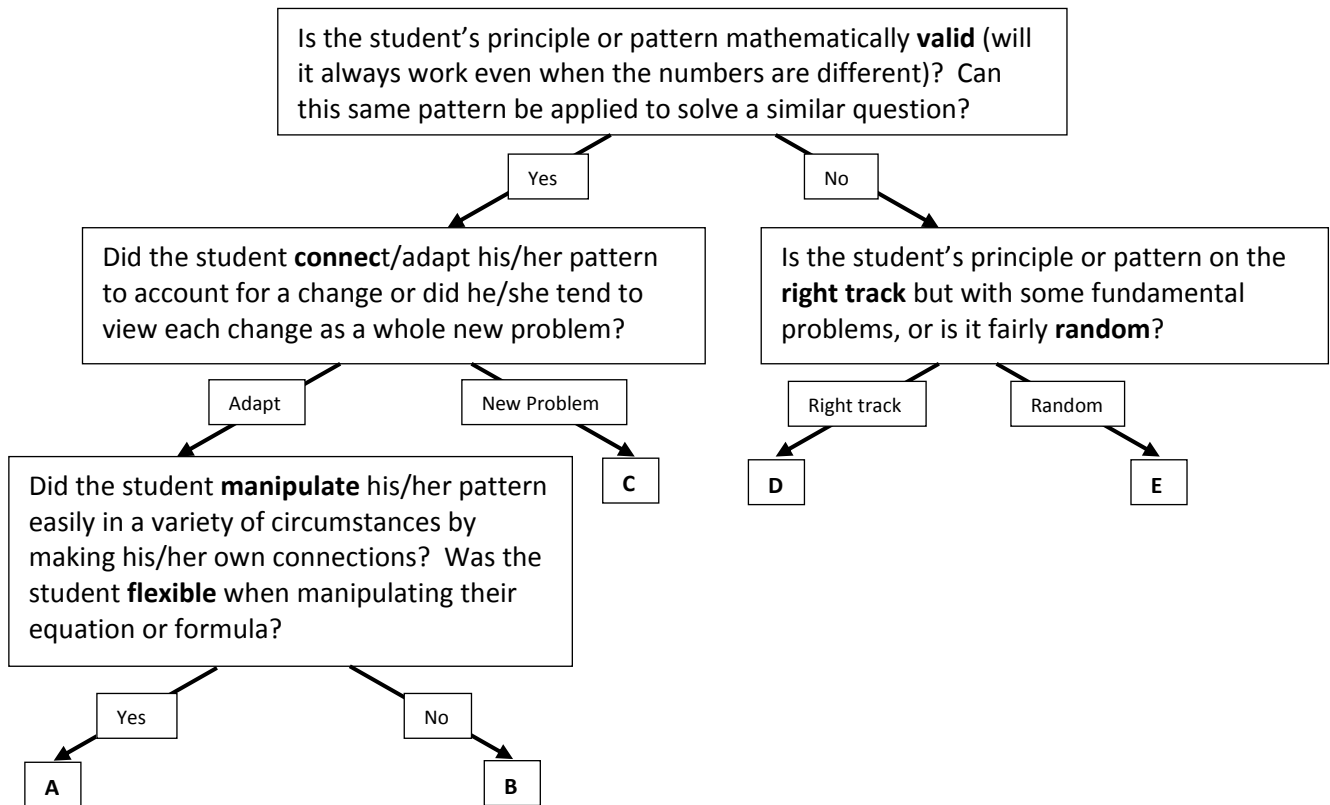
<b>Applied Maths</b> - Did the student:	
<b>Competently apply</b> known maths to real life situations?	<b>C</b>
<b>Sometimes apply</b> known maths to real life situations, with mixed success?	<b>D</b>
Very occasionally or <b>minimally apply</b> known maths to real life situations?	<b>E</b>

**Reasoning:** The mathematical process followed to solve a problem



For tips on improving student reasoning, [click here](http://goo.gl/PiM5S) (<http://goo.gl/PiM5S>)

**Understanding:** Patterns, principles and connections between mathematical concepts.



Now that we have the basic principles, why not try using these to assess the student sample work on the next page?

### Before you look at the example....

We have split this topic over two issues of The Insightful Classroom for two reasons. Firstly, we wanted to allow enough space to explain a few points clearly. Secondly, we want to be able to **respond** to your particular queries and will even produce a third issue if required.

Please consider the following example to be an interactive exercise - think about what you find confusing or difficult in assessing primary maths and what you need clarified and we will address your questions in the coming weeks.

We have also produced some more sample work which you can download from [this link](#).

We know there has been a lot of confusion and mixed messages in this area, and have a lot of experience in dealing with that confusion - so please ask anything at all.

For those of you seeking help with implementation of the primary maths curriculum, we have worked with hundreds of schools, with maths teaching associations and state education departments to provide practical, real-world training, advice and resources to classroom teachers and HOCs and will be pleased to help point you in the right direction.

Email: [admin@kennedypress.com.au](mailto:admin@kennedypress.com.au)

Phone: 07 3040 1177

## Student Sample Work:

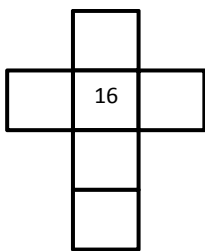
Often it can be difficult to work out what grade to give a student, particularly when there are different ideas amongst staff members as to what the standards mean. The sample work below has been included so that you can work together to assign a grade for Problem Solving, Reasoning and Understanding using the flow charts on the previous pages. This moderating activity should allow you to come to a common understanding, ensuring consistency throughout your school or district. For further examples, go to this webpage. To follow the discussion about how and why this sample is graded, join our "[Maths Matters](#)" teachers page on Facebook.

### Brittney, Year Two Student

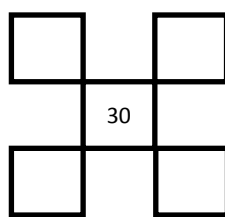
#### Task Description:

The teacher explained a game called "What's missing?" and drew some squares from the hundreds chart on the board representing the first diagram below. The students copied the shape onto their paper and then worked out which numbers were missing from the chart (what number would come above, below or beside).

Level 1:

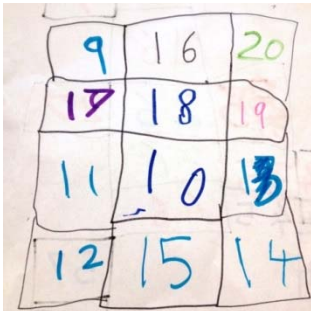


Level 2:



**Brittney** is a typical year 2 student. She can count fluently past 100, including counting forwards and backwards in 1s, 2, 5s and 10s. She can count in 10s from any number. Her previous grades have been about a 'B' standard for maths. Brittney examined a hundreds chart with other students in her grade before attempting this task. She easily stated the counting patterns horizontally and vertically. Her fluency levels were well up to this task, but the question below clearly involved a lot of new thinking for her as evidenced by her responses:

#### Initial response before teacher leading:

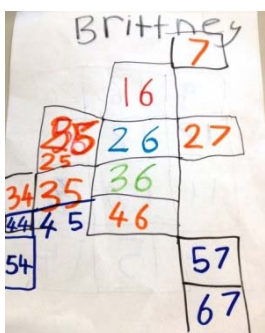


After this initial response, the teacher circled the number underneath the 16 and asked to have a look at that space on the hundreds chart. Brittney stated that it was 26. The teacher then asked how 16 and 26 were "kind of the same", and what the difference between them was. Brittney could identify that they both ended in 6, but not that the difference between them was 10. Brittney was asked to make 16 from base 10 blocks then add extra blocks to turn it into 26. She counted on until she reached 26, then identified that it was 10 blocks that she had added. She then arranged the 10 blocks into a straight line to resemble a '10' block.

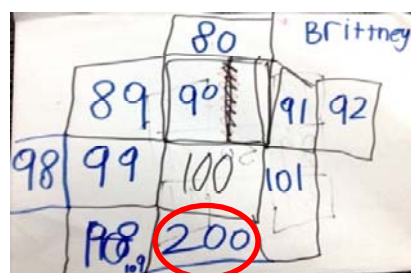
Brittney was then asked to predict what number would be underneath the 26. She replied "27". The process was repeated, with "how are 16, 26 and 36 kind of the same?" and "how are the numbers changing?"

The picture below shows Brittney's second response. The second picture shows her extension question. These clearly show the growth in her understanding of the underlying patterns and principles. Note the new misconception in the extension task.

#### Second attempt:



#### Extension task:



This problem was adapted from



Grade 1 Thinking Journal Problem 5

<http://goo.gl/VpSrG>

For more Problem-Based lessons in a developmental sequence, go [here](#)

<http://goo.gl/uquK7>.