Guide to using teaching strategies and resources

a) Process for designing targeted teaching strategies

Four workshops were held between December 2011 and August 2012, during which teachers from a total of 18 schools used formative assessment data to inform the development of teaching strategies, learning activities and resources. The process involved the validation of a Professional Learning Team Log (PLT) that facilitates teacher reflection regarding the identification and organisation of effective developmentally targeted teaching strategies. The definition of these teaching strategies was driven by the identification of students current zone of proximal development (ZPD), targeting the point of readiness to learn of students at different developmental levels.

b) Professional Learning Team Log

The underlying assumption of this process is that teachers who use a specific style of evidence-based teaching, and operate within a developmental learning paradigm have an increased effect on student learning outcomes. More specifically, the evidence suggest that with a data-driven, evidence-based approach to teaching and learning, teachers could manipulate the learning environment and scaffold learning for every student, regardless of the student's development or intellectual capacity (Griffin, 2007).

The PLT log provides a means by which teachers can engage on this process, developing strategies in a way which clearly targets the students' point of readiness to learn. By following this process, teachers interrogate the connectivity between the different elements composing the PLT Log:

learning intentions, evidence, teacher strategy, learning activities, resources and review and reflection (as presented in Figure 1). When teachers work collaboratively to ensure that these elements are aligned, the effectiveness of teaching interventions is significantly enhanced for students at different developmental levels.

Sample PLT Log Template

Student(s) Name(s)/ ARCOTS Code:					
Date :					
Developmental Domain					
Developmental Level & Nutshell Statement					
Evidence for this level? (What makes you say this?					
What is the student ready to learn?	*What are the expected outcomes and evidence?*	*What interventions has the teacher planned?*			*What worked? What next?*
Learning Intention/s (Specific **skill** or concept or part thereof to be learned)	**Evidence** (What the students will be able to do, say, make or write).	**Teaching Strategy** (What the *teacher* says, does, makes or writes)	**Learning Activity** (Describes what the students are actually going to do)	**Resources** (People, place or things used in the activity to realise the learning strategy)	**Review & Reflection**
1.					**Review Date:** **Reflection:**
2.					**Review Date:** **Reflection:**
Rationale:					

Figure 1: PLT Log Template

The PLT Log template provides a context for teaching reflection about how to interpret data and link this information to their own teaching, testing the links using the discourse of evidence and accountability among peers. This relationship between teacher behaviour, knowledge and values with student learning is a key issue addressed by the process of designing the PLT Log, as teachers are supported in the interpretation of data and in the link of their interpretation to targeted intervention in a differentiated instruction framework model (Perkins, 2006). Teacher professional dialogue in the process of working with the PLT Log involves critical and collaborative discussions, where teachers test their ideas about the links between assessment data, students learning and targeted teaching. In this way, teachers deepen their understanding of how students learn and how this is linked with their professional practice. This reflection also strengthens teachers comprehension of the developmental nature of the construct areas in which they teach, Additionally, the analysis of the effectiveness of the intervention deepens teacher knowledge and understanding of how best to use assessment data to improve learning outcomes.

Team-based models are an effective form of professional development in comparison to traditional workshop models. Change in teaching practice can occur when teachers are engaged in examining their own theories of practice (Deppeler, 2007). This practice has been identified as an effective practice in improving teaching and learning (Snow, Burns & Griffin, 1998; Taylor, Pearson, Peterson & Rodriguez, 2005).

c) Learning levels distribution

The challenge of defining suitable teaching strategies for students at different developmental levels within each year is informed by assessment data. The following graphs show the spread of students by year for all the students tested using the Assessment Research Centre Online Testing System (ARCOTS)[1] in March 2011 (a total of 15,578 students for reading comprehension and of 14,304 students for numeracy).

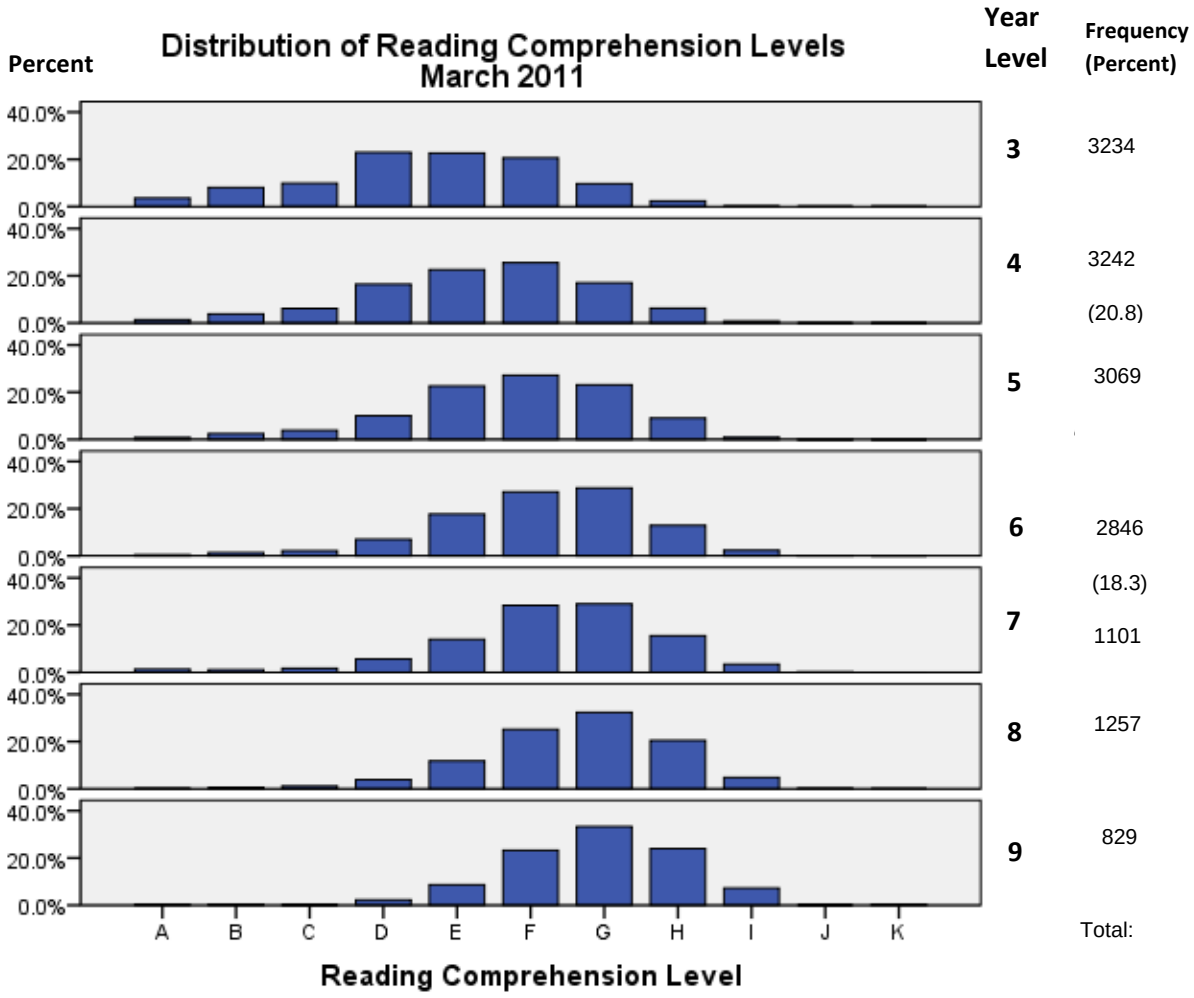


Figure 2: Distribution of Reading Comprehension Levels, March 2011

[1] Schools in the Assessment and Learning Partnerships Linkage project use ARCOTS to assess their students at two time points over the school year. ARCOTS is an online system and can be used to assess literacy, numeracy and problem solving. The testing system is quasi-adaptive to help teachers target assessments and match the tests to the student ability level to gain maximum information for teaching intervention.

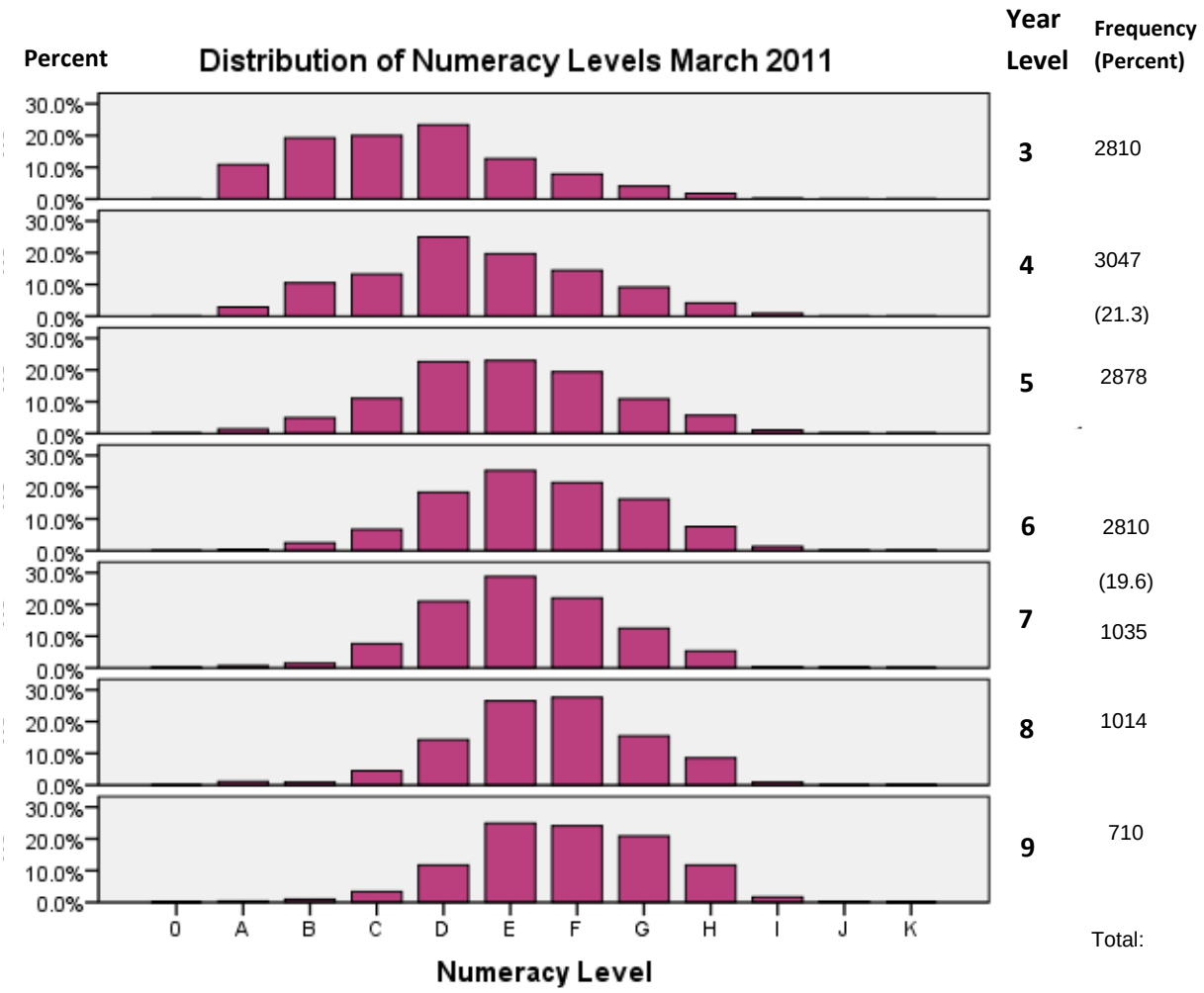


Figure 3: Distribution of Numeracy Levels, March 2011

As the graphs show, in each year level there are a number of different developmental levels that represent what the students are ready to learn. To address different student readiness to learn points teaching should be targeted, and differentiated interventions need to be used within the same year level. For example, if a teacher is working with Year 4 students in reading comprehension, the most likely distribution of levels will be from students who can "Locate and match adjacent words in text at word and phrase level" (Level A in the developmental progression) to a group of students who can "Infer author's perspective from what is written and what is implied (and) Identify how different texts are structured" (Level H). In a similar manner, if a teacher is working with Year 4 students in Numeracy, the levels also are distributed between A and H (there are even a few students in Level I). This diversity needs to be addressed when planning if teaching is to target all students learning.

d) Targeting teaching strategies

When designing targeted teaching strategies for the different levels on the reading comprehension and numeracy developmental progressions, the key task for teachers was to articulate the **skill** then

match the **strategy** to the skill being targeted. The 'strategy' may consist of an overarching strategy and subordinate strategies or a series of related strategies. In matching strategies to the skill teachers checked that the specific objective that sits behind any given strategy was aligned with the **level** and **complexity** of the skill being targeted. The PLT log was used to document the sequence of strategies designed in the intervention so as to provide a framework for the learning activity and to support the further development of a bank of strategies.

Thus:

SKILL → **STRATEGY**

Based on — Is matched to Skill

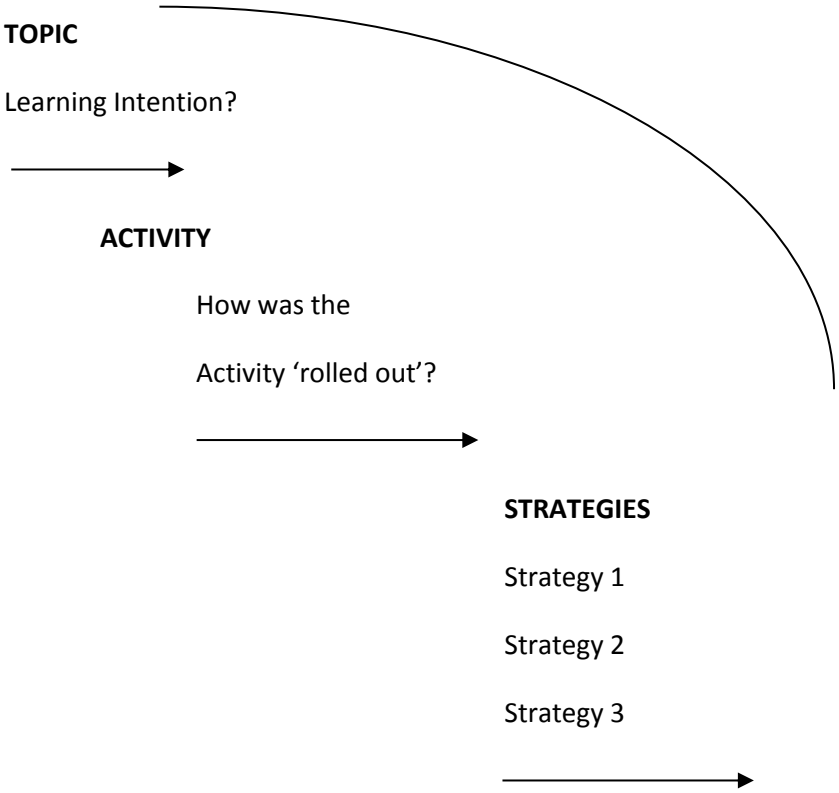
Developmental — Aligns with complexity

Level — Strategy 1

Strategy 2 — Informs Activity — **ACTIVITY**

Strategy 3 → Documented in PLT Log

This process can be also used in a backwards-design approach enabling teachers to analyse activities/strategies they are currently using. To do this we start with the 'Activity' and apply the process in reverse, as reviewed in the following example:



Let us look at this backwards-design approach in relation to an example, e.g 'Word Splash', see below, which is sometimes referred to as a strategy or an activity. We found this example on the web. (www.turningpts.org/pdf/Word_splash2.doc)

Word Splash

We read better when we read with purpose. Reading for leisure we supply our own purposes based on our interests and tastes. At other times purpose is provided to us by a particular task: we read the camera manual in order to learn how to operate it; we read workplace memos—either e mailed to us or placed in our boxes—to learn (we hope) important information.

The word splash activity supports students' reading by helping to provide purpose. It is especially important that struggling and reluctant readers are provided with a purpose before reading. A student generated word splash asks a group of students to quickly brainstorm on a large sheet of paper all the words they associate with the topic of the article they will soon be reading. The teacher can then review these words with the class by asking individual students to write a sentence using the word or by asking students to write a paragraph using some of the words. The teacher can also review words orally with students exploring the meaning of the word and the association the word has with the topic.

After reviewing the words, the class can begin reading the article. Using the word splash the student will read with recently activated background knowledge and with purpose as she discovers whether the understandings generated by the word splash can be confirmed or corrected.

Extracted from: www.turningpts.org/pdf/Word_splash2.doc

The posters of this 'strategy/activity' on the web go on to say: 'A teacher generated word splash can be used when students are reading an article like this on a topic that may not be easily accessible to students. For example, a Word splash for an article on the importance of food can be:

Teacher Generated Word Splash for "The Importance of Food" Science Chapter

Breaking the example down using the backwards design method, we find the following:

Topic	**The importance of food**
ACTIVITY: **(What students do)**	• Students brainstorm words associated with the topic • Answer questions about the meaning of the words • Write a sentence or paragraph using some of the words • Read a selected article • Discover whether the understandings generated by 'word splash' can be confirmed or corrected.
STRATEGIES: **(What the teacher does)**	• Directs students to brainstorm topic • Review words identified by students on a 1:1 basis • Conducts class discussion to explore meaning of words • Direct students to write a paragraph

SKILL	• The skill that is being 'taught' was not articulated explicitly in the original version sourced.
	• It has the potential to be used to target skills relating to:
	  ○ Level C: **Identify main ideas** and characters in the story. Interpret paraphrased sentence and paragraph level text.
	  ○ Level D: **Draw together ideas and information from across the whole text**. Infer characters feeling from narrative text.

LEARNING INTENTION	• Level C – Use prior knowledge of a topic to support the identification of the main ideas in a text • Level D – Articulate connections between ideas
OBSERVATIONS	• Using 'Word Splash' for the entire class and without a clear focus (i.e. clearly aligned to the skill being identified and taught) may not result in an overall improvement in student learning. However, if it is used to target particular skills, it may prove to be useful in scaffolding students at Level C and Level D within their ZPD. • There are lots of examples of teaching strategies/activities that you can collect. The main question to be asked when deciding whether or not to implement them is "What skills will be targeted?" and "is there any evidence that they are effective at scaffolding students who are ready to learn that skill?" • It is important to bring a range of strategies and activities to the table. It is equally important that they be evaluated. If

	they are aligned and prove to be effective, document and keep them.

The question that we have to ask here is what 'skill' does Word Splash target? When we look at the learning intention a skill is not explicitly articulated. As the activity currently stands it may work to target skills at Level C (identify main ideas and characters in the story, and interpret paraphrased sentence and paragraph level text) or at Level D (draw together ideas and information from across the whole text. Infer characters feeling from narrative text)

So, the question is how could we develop the activity to explicitly target the intended skill? One skill that could be developed from this example is perhaps, prediction. How might the activity be modified to target that skill? At what level of complexity will it be targeted? What strategy would best target that skill at that complexity level (refer to taxonomy)? What would be the expected outcomes and evidence?

e) The strategies

Bearing in mind the process previously described, the skill levels distribution and using the PLT Logs, the set of sample targeted strategies presented in this publication was developed. These strategies are mapped against empirically based developmental progressions in numeracy (number) and reading comprehension, copies of which are provided on the website.

It should be noted that the strategies presented are not ends unto themselves, rather they are means of promoting professional discourse: discourse about student developmental reading and numeracy levels, discourse about the elements of comprehension, discourse about teacher content knowledge, and discourse about teacher pedagogical content knowledge. In this way, these strategies are a sample of the kind of strategies that teachers can use for students at different developmental levels, but they do not intend to be a comprehensive set of samples. Instead, it is hoped that these set of strategies can be used to facilitate teachers' collaborative reflection about students at different skills' levels and then new targeted strategies can be adapted from the repertoire teachers already are using. Teachers are advised to use the strategies as starting points for discussions during PLT meetings and to consult the references listed on this website.

Reading Comprehension

The sample PLT logs demonstrate how skills at each level from A to L on the Progression of Reading Development can be taught progressively using 'Waltzing Matilda' as a common resource. In the first instance teachers should approach the PLT logs holistically and trace the development of skills across all twelve levels. This will strengthen teachers understanding of the developmental progression and of how teaching can be differentiated. The next step is to focus on a specific student, locate the student's developmental level based on evidence of what the student can do, say, make or write, and identify the log which: (i) explicitly addresses the skill level the student is at, (ii) covers the skill level the student has progressed from, and (iii) points to the skill level the student

will aim for next. The identification of a student provides the context of the skill level they are working at and therefore allows for a more meaningful engagement with the steps described in the log.

Though the sample logs can be used to teach the skills at each of the levels on the Progression of Reading Development their main purpose is to serve as a model for teachers to use, a model around which teachers can discuss and develop targeted and documented teaching strategies. Effective teaching has to take into account context and this is always changing. Effective teaching also draws on:

- teacher understanding of student developmental levels,
- learning intentions,
- knowing what evidence will describe when a student has mastered the skill,
- aligned teaching strategies, learning activities and resources.
- review and reflection.

Each of these steps is built into the PLT log. By following the steps outlined in the log, especially when this is done collaboratively, teachers can maximise their effectiveness.

Numeracy

What is true in terms of the use of the PLT log for Reading Comprehension is also true for Numeracy, the focus of which is on Numbers, one of four strands described in the Numeracy Progression already referred to.

In the document identified as "Numeracy Strategies by Skill Level Grid", a brief description of the strategies – considering the learning intention, the teaching strategies and the learning activities – for each level is provided. Strategies at each level are organised taking into account three overlapping, flexible groups: junior years (from years 3 to 5), middle years (around years 5 and 8) and upper years (around years 8 to 10). This distinction acknowledges the different context for students even if they are at the same readiness to learn point. Therefore, the activities are contextualised according to the year levels students are typically in, but retain the same learning intention aligned with the developmental level. For some developmental levels, however, no teaching strategies are proposed. This occurs at upper years for Levels A and B and junior years for Levels J, K and L. These are shaded grey in recognition of the fact that students at these particular year level may be outside of the typical distribution in a mainstream school and that specialist support may be desirable.

A sample PLT log is provided for each developmental level highlighted on the grid in pink. At the end of each level, there are also a number of empty rows to highlight that this is a work in progress for PLTs.

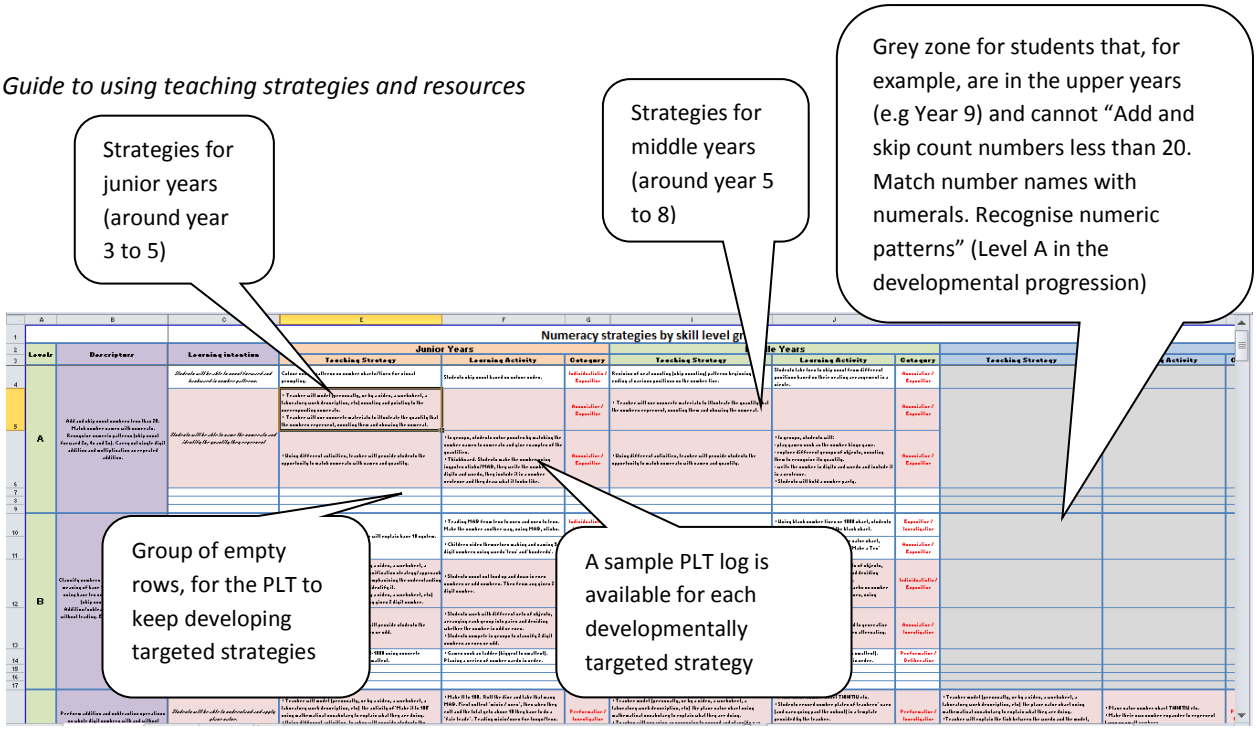


Figure 4: Numeracy strategies by Skill Level Grid

When teachers are working on the design of further targeted strategies using PLT logs, some questions that would be useful to interrogate the strategies proposed are:

1. Is the strategy addressing what the students are ready to learn at this particular developmental level? (to evaluate the suitability with the skills level)
2. Is a student at these years able to engage with that kind of learning activities? (to evaluate the suitability with the year level)
3. Can the teaching strategies for different levels be implemented simultaneously by the teacher? (to evaluate the classroom management feasibility).

When analysing the third question, it is important to consider that teachers may need some additional resources and support on how to organise the classroom for targeted learning activities to happen simultaneously. For example, many of the teaching strategies begin with a modeling intervention from the teacher. This modeling, however, does not necessarily need to be done personally by the teacher (that then will need to model to different groups at the same time), but can be done by a video, a worksheet, a laboratory description, or in different ways.

f) Taxonomy for Identifying, Classifying and Interrelating Teaching Strategies

A Taxonomy for Identifying, Classifying and Interrelating Teaching Strategies has been created for literacy and numeracy strands. This matrix is based on the work of Charles R. Beck (1998) in which he attempted to establish a common classification system for teaching strategies. This work was a synthesis of a survey of 25 educational texts which revealed that while teachers generally have a shared or common understanding of the purpose of teaching strategies, there was little evidence of agreement as to the identification or classification of teaching strategies. For the purpose of Beck's article, he identified three common definitions of teaching strategies, namely:

1. A teaching strategy is the means by which a providing source delivers or transfers educationally structured content to the receiving source; or
2. A teaching strategy is an organisational plan or set of systematic procedures designed to convey subject matter to learners; or
3. A teaching strategy is the process by which content is presented to learners to achieve educational goals or objectives.

For the purpose of this project, all of these definitions encapsulate the essential factor that sets a teaching strategy apart from a learning activity. Research was conducted in response to feedback from teachers, and surmised that a teaching strategy is what the teacher does and that a learning activity is what the student does. As such, a large portion of a teacher's time is spent engaging in teaching strategies as 'they are pivotal and pervasive instruments for providing instruction' (Beck 1998:37). It is the intention of this project to assist teachers in their explicit use of teaching strategies for the purpose of improving student learning outcomes.

Figure 5: Taxonomy of classifications based on the work of Beck (1998) 'A taxonomy for identifying, classifying, and interrelating teaching strategies'

As Beck rightly identifies, there are many combinations of strategies and teachers will often combine them so as to add variety and improve the effectiveness of instruction. It will also start to become apparent that while the categories are discernible, they should not be regarded as mutually exclusive and categories will often complement each other. As such, some strategies may fall within one or more categories depending on the how and why the strategy is implemented. In the sample taxonomy provided, examples have been given to demonstrate the way that categories may be combined to achieve different outcomes.

Figure 6: Categories with example strategies based on the work of Beck (1998) 'A taxonomy for identifying, classifying, and interrelating teaching strategies'

It is important to note that the process of combining strategies is not limited to the use of two strategies, and the examples provided are simply a sample common pairings used by teachers. Importantly, each category of strategies targets particular objectives. Again these are not fixed or closed. Instead, they are to be used as a prompt for critically evaluating the appropriateness of using a particular strategy to achieve the desired learning intention.

g) References

Charles R. Beck, (1998) 'A taxonomy for identifying, classifying, and interrelating teaching strategies', Vol. 47, No. 1 , *The Journal of General Education*, pp. 37-62, 37

Deppeler, J. (2007). Collaborative inquiry for professional learning. In A. Berry, A. Clemens, & A. Kostogriz, (Eds.), *Dimensions of Professional Learning*. Rotterdam: Sense Publishers.

Griffin, P. (2007). The comfort of competence and the uncertainty of assessment. *Studies in Educational Evaluation.* Vol. 33, pp. 87-99.

Perkins, D. (2006). Teaching for understanding. Retrieved 18 October 2011, from http://www.pz.harvard.edu/PIs/DP.htm

Snow, C., Burns, M & Griffin, P. Eds. (1998). *Preventing reading difficulties in young children*. Washington, DC, National Academy Press.

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