Working Like A Mathematician

POLY PLUGS
in a
Buddy System with Year 1

John Harnett, St. Mary's Primary School, Moruya

John (and fellow teacher Matthew Harpley) were involved in a six day professional development program organised by the Canberra Goulburn Diocese of the Catholic Education Office. Between each set of two day workshops participants were expected to conduct classroom trials. In this case the school had been asked to trial Bridging Tens and Ten Tens as threaded activities over time. This is a slightly edited version of the report John gave during the course.

We introduced Year 6 to Poly Plugs during Term 2. They were very excited and enthusiastic. They had had no previous contact with PP. Our aim was for 3 sessions of 30-40 mins for 4 weeks. With day to day business as usual being a factor and the inclusion of another class this extended to 7 weeks.

In my opinion the spirit of Bridging 10's and associated activities was really aimed around Year 1 so I tried to honour that spirit. The aim was threefold:

- To familiarise Year 6 with PP, demonstrate that they could be a fun and beneficial way to aid learning and to reinforce knowledge and skills.
- To use the PP to introduce and consolidate place value and combinations of 10 for Year 1.
- To give Year 6 the opportunity to also develop some communication skills and develop a rapport, particularly with a difficult class.

It took most of a session to familiarise ourselves with PP and to go through the pack up and procedure drill before we engaged in a couple of fun activities; PP Battleships, Making Digits, Investigating Division, Mini Squeeze, Rabbit Hunt, Long Noughts and Crosses and we included warm-up sessions involving Times Tables Torture over the next 2 weeks. Yep they were enthusiastic.

I then explained the second aim - working with Year 1 and teaching them Place Value and combinations of 10 using the PP. We would work through each activity first to familiarise ourselves with the activities and attempt to anticipate any problems we would encounter. Again a positive response. I explained that our goal activity was Bridging 10's but we would begin with Ten Friends.

The students worked in pairs, and following the explanation and modelling, we attempted the activity with success. Following a debrief, the suggestion was made that each pair should have a hard copy of the instructions rather than a couple available for reference around the room. This suggestion was acted upon and the following lesson began with a quick revise and then down to Year 1 to begin our teaching session.

I had briefed Year 1 earlier that we were coming down to talk about and teach them Place Value and combinations of 10, briefly ascertaining their overall knowledge and understanding. Very few had the idea that 10 ones did equal one ten.

After a quick intro about Place Value and combinations of 10 both classes were divided up into pairs and worked through the PP session. A couple of problems, mainly involving teaching strategies and the use of calculators, (Year 1 were not familiar with them, Year 1 teacher volunteered to do some calculator work with them before our next visit), but all groups from both classes were enthusiastic participants. A quick debrief with both classes and a couple of questions on the run assured us we were successful and onto fruit break.

This procedure was repeated two days later and Bridging 10's was also received enthusiastically, and again knowledge continues to grow within our Year 1 cohort. Debrief with combinations of 10 were very successful.

We had a few days before our next session so we attempted to thread this activity within the class 10's to 100's, 100's to 1 000's, 1 000's to 10 000's, some groups went as far as 10 000 000's.

Ten Tens was the logical next step and again Year 6 worked together as a group and really responded to the game like approach of this activity. The same was found with the attitude of Year 1 particularly when it was announced as a game before the session began. The competitive nature of this activity made the time pass very quickly and smoothly. I suspect that the fact Year 1 were more familiar with the PP and Year 6 had previous teaching experience also helped with the smoothness of the lesson. At debrief many, many correct answers were given and there was a request from Year 1 that we visit again with this activity, which we had not planned on doing. We did anyway and the lesson again was a success. Sounds like aim number 3 worked as well.

We also threaded this activity as part of a group rotation using place value up to millions and have incorporated this and many of the PP activities mentioned earlier into Maths Group rotations up to this point in time.

My next challenge for the class is to give them time to come up with other activities that us or Year 1 could participate in, either entirely new activities or modifying existing activities.

CALCULATORS

Prior to the PP challenge Year 6 trialled certain calculator activities from Calculating Changes. Each activity was introduced as a warm up for our Maths session so that each student would have knowledge of the activity. Our goal was to incorporate the activity into one of our Maths group rotations for 2 weeks. Activities included; Please May I have, Calculator Go Froms, Twenty One (this was threaded to start at target and work backwards and change the target number at the beginning of each round) and Target Range (we also used decimals with this activity).