

Selected intervention – *Numicon at Axe Valley Community College, Axminster, Devon*

Individuals selected for intervention

Students selected for intervention were the weakest students in the cohort. Typically level 2 or below.

Rationale for selection of intervention

We selected Numicon because we felt that we needed a primary based system to address some fundamental primary based issues that some of our children were facing. Our approach in the past has been to teach a basic version of the KS3 curriculum. We found that the strategies and compromises required to move the children through this course did not build the understanding required for success at GCSE. We felt that the students would be better served taking the time to reinforce and repair the foundations of their mathematical understanding before attempting to layer on more complex ideas.

The intervention required a number of activities to be trialled, which, it was hoped, would lead to closing these identified gaps

Actions taken

Stage 1 Training and planning-

The Numicon program is resource intensive. It helped that the children we were intervening with were already due to be extracted from class and the Learning Support department were looking for an effective program. The main challenges came with the amount of time that the initial program assessment took (up to eight hours rather than the advertised one hour) and staff being redirected to other activities such as Exam support because of the time of year we were trying to run it. Schools running the program may want to consider negating this by running longer intervention programs which greater leverage the initial investment in the very good assessment and diluting the impact of seasonal distractions.

Impact

Evaluation of overall effectiveness of interventions:

Using a standard system where 1 sub level is worth 2 points the Numicon group who made it through the course (2 of the 7 left the school in that period) gained an average of 0.9 points (aprox half a sub level on average. The group who were not doing the Numicon Intervention Program added 1.9 points (aprox 2 sublevels).

This masks some real success where two of the 5 students made substantial gains (highest overall gain in class and joint second highest overall gain in class). One student did drop back disappointingly. The test was unable to demonstrate level progress for the remaining two students since both fell below the minimum score on both tests and the higher minimum on the first test (a 2b whereas the second test had a minimum score of 1a) meant both were unfairly shown as reducing in level.

We felt that all the students showed significant gains in their understanding and concept of number that may not necessarily be shown yet in test results. We feel that they are all significantly better equipped to deal with the challenges to come.

From a staff perspective the staff involved were extremely motivated to find better ways of intervening with numeracy and greatly enjoyed the cpd and project.

Stage 2 Running the interventions -

I understand that we are an exception for the Numicon Intervention Program in our attempt to use Numicon to repair holes in understanding for KS3 students. One challenge is that many of the students have previously seen NUMICON in the early stages of primary school and some mistakenly see it as too basic for them. Convincing students of the benefits of revisiting and rebuilding basic skills in Maths and the eventual benefits of faster progress is sometimes hard. We attempted to negate that by making it a standard tool in our classroom, using whole class sets to normalise practice where possible outside of the small group work. Another piece of advice that secondary schools considering the program may want to consider is to keep the intervention groups as small as possible because the issues you are addressing (as identified by the assessment) may be very diverse. Students can have very specific weaknesses that they are happy to address but see others' problems as too basic for them to work on.

Reflecting upon the value of undertaking evidence based research in the form of a RCT (randomised control trial) –

The project has been an exciting development for us and we feel fills a significant gap in our ability to intervene meaningfully with our least numerate students to prepare them for the challenges ahead. I am concerned that the results of the RCT do not fully reflect the value that we see in securing confidence and basic understanding for future progression

Next steps – The Numicon Intervention program will form a significant piece of our new Springboard curriculum for our weakest students. It will be an integrated component of a program which will contain similar interventions for literacy in dedicated teaching hours. WE hope that the full year program will better leverage the initial assessments and look forward to being able to explore more of the resources.