

Wave 3 Maths Programme. The Number Box: Summary of pilot 2005-2006

Name of Resource: The Number Box

The majority of participants chose to work with pupils 1:1. Where participants initially began in a 1:2 group, in both instances they changed to 1:1. This suggests that when the resource is first introduced to staff delivering a 1:1 situation is easier to manage.

Who is working with the pupil?

Generally TAs delivered the programme. Sometimes the SSA was used. In one instance the teacher took part in the programme but found it difficult to sustain her involvement in the light of all the other pressures of her role.

Give a brief summary of the pupil(s) needs

The pupils chosen for the study were low achievers in mathematics and some had an IEP specifically targeting numeracy. Confidence as well as skill levels were frequently a cause for concern. In some instances the pupil had identified learning difficulties e.g. specific learning difficulties.

	1=difficult			10=easy							
10											
9											
8											
7											
6											
5											
4											
3											
2											
1											

Completed responses show that the programme was easy to use.

What is your view of the success or otherwise of the trial?

Staff were very positive about the success of introducing Numberbox. Confidence and skills were viewed as increasing and pupils seen to enjoy a sense of achievement. The 1 to 1 teaching situation was viewed very positively, some wished the 5 to 10 minute slot was longer.

The summer break posed difficulties as staff working with the children were attached to particular classes, some managed to get round this difficulty by careful timetabling, others by changing the TA delivering the programme. Some schools had difficulties when the chosen pupil changed school or was absent long term. Some staff long-term absence also effected continuity. Most staff felt prepared for the study but some staff missed the initial training opportunities and were therefore less secure about what to do.

Has been a useful tool for moving children on. Using WRAT 3 may have been useful to supplement PIVAT scores.

Needs careful planning of time and resourcing of staff. It breaks down when extra staff are absent.

What are the best features of the Number Box?

It was self contained, portable, needed little preparation and planning of lessons. It was straightforward to use with clear instructions. Pupils had ownership of the box. Useful, multisensory and varied activities e.g. whiteboard, visual boards, shapes, clock, brightly coloured apparatus.

Please comment on the delivery of the Number Box.

Most staff found it easy to deliver the activities of the Number Box because of the clear instructions and the self contained activities. Sessions were seen as enjoyable for both pupils and staff. One felt a longer time than 10 minutes was necessary.

What improvements could be made?

- a. An option to buy a video/DVD to supplement the instructions
- b. More detailed instruction sheets for each page of the manual.
- c. The targets could be matched more closely to P scales and records of achievement, break down the targets more.
- d. A supplementary book/ pack of extension materials would be an excellent idea.
- e. An ICT link for children to use.
- f. A bank of downloadable materials to supplement the activities in the box-this could include contributions from people using the box.
- g. A magnetic whiteboard.
- h. Clearer instructions for using the table strips.
- i. Writing cue letters on the back of the shape cards.
- j. An activity for 3D shapes, a 3D shapes baseboard.
- k. More plastic magnetic numerals and may be plus minus and equals symbols to make sums.
- l. It needs a magnetic 10 and another 5.
- m. The number could be a better quality than fridge magnets.
- n. 'Prices' for items to buy.
- o. Counting on from a given number activity.
- p. Provide enough cubes to work on area/volume or provide a smaller box or made-to-fit boxes for cubes. This would provide more accuracy for the concepts of perimeter, area and volume.
- q. A template for making three different sized small boxes for work on shape, area and perimeter, that are an appropriate size for the number of cubes would be supportive.
- r. The number baseboard could be reversible with numerals on one side and the number words on the reverse.
- s. Include targets in record of achievement for number rhymes, counting backwards and counting on from a given number, measuring and 3D shapes

Has the pupil made progress? How do you know?

1. Pupils were generally viewed as making progress, this was indicated by a variety of indicators, enthusiasm for the Number Box sessions, increased confidence in maths lessons, ability to work more independently. Children made progress as indicated on the recording tick list, PIVATs and in one case on the WRAT-R3. Used appropriately the resource was seen as of good value.

Where there any outcomes from the project that were unexpected?

- a. The study contributed to a clearer picture of the barriers to learning presented by the pupil.
- b. Helped in the organisation of mathematics interventions.
- c. Increased recognition of the importance of the language of maths and of the value of multisensory approaches.
- d. The study raised awareness of PIVATs as a means of charting progress, an LEA objective and of the term 'WAVE 3' in the national curriculum.
 - Students retained more across the summer.
 - Much of the activities in the box could be used with other children.

Would your school be continuing to use the intervention after the trial?

Generally participants found the trial successful and viewed the number box as a good resource. Participants were all keen to carry on using the number box if it was their decision, time and funds allowed for its continuation and timetabling issues could be overcome. The 1:1 was seen as a significant strength of the box although many now felt confident to use it with a small group or pair.

Many comments were made about changes in attitude and practise and the following give a flavour of these.

'It's taught me how to deliver different numeracy concepts and how to adapt the situation. I used some of the things in class.'

'This approach really motivated the pupil. I'll be more multisensory now though old habits die hard.'-' It helps them to concentrate and retain stuff better.'

'I found it valuable to teach small steps.'

'Helped me to be more organised in lessons.'

'Can see the value of using practical apparatus and importance of using 'correct' vocabulary with young ones.'

'I gained more knowledge of how to teach numeracy.'

There were events that interfered with the smooth running of the project despite these progress was maintained.

The intervention ran across 2 years. This caused difficulties for staff who worked with one year group who found it hard to arrange teaching times when pupils moved class. The summer break caused a slow down of momentum in some cases.

Not all staff eventually running the programme where able to come to the initial introduction. This led to some confusion and misunderstanding about the running of the project.

Long term staff and or pupil absence strained the human resources available to run the project.

Some of the pupils selected changed schools.

This table suggests that the number box has been effective but the study was too small scale to indicate proof.

Number Box Users							
Year	Number Pivat Pre-score	Number Pivat Post-score	Diff	Shape Pivat Pre-score	Shape Pivat Post-score	Diff	
2	28	39.5	11.5	41	41	0	
2	24	28	4	19	23	4	
2	24	29	5	24	28	4	
2	28	29	1	42.5	47	4.5	
2	28	47	19	23	45	22	
3	39.5	47	7.5	39.5	45.5	6	
3	29	41	12	34	42	8	
3	38	47	9	39.5	48.5	9	
4	38	39.5	1.5			0	
4	35	48.5	13.5	34	41	7	
4	39.5	48.5	9	39.5	47	7.5	
4	23	28	5	13	24	11	
5	42.5	58	15.5	41	41	0	
Median Diff		9			6		
Mean Diff		8.73			6.92		
Controls							
2	28	29	1	41	41	0	
2	28	29	1	41	42.5	1.5	
2	28	47	19	23	47	24	*****
3	38	39.5	1.5	39.5	47	7.5	
4	44	48.5	4.5	42.5	42.5	0	
4	41	48.5	7.5	39.5	41	1.5	
4	22	28	6	15	18	3	
4	19	41	22	19	41	22	*****
Median Diff		5.25			2.25		
Mean Diff		12.59			10.43		