

WEE RED BOX research
at Curriculum for Excellence level 1
with P4 teachers and their pupils (April – June 2011)

• were the Wee Red Box flash card techniques beneficial for helping pupils get better at numeracy? If so, how?

- The children were more confident in their approach to numeracy and very enthusiastic about taking part. One child in my class who would not normally take part in this kind of oral whole class maths activity began joining in.
- The children were really motivated. They loved competing against each other. Learning was fun.
- The children thoroughly enjoyed using the flashcards. They certainly help to improve recall of the number facts.
- The children were extremely motivated by the flashcards and by the element of competition the cards provided. They were keen to better their previous scores and sought to improve their speed each time.
- The children gained confidence in their own mental maths abilities. They also looked forward to setting themselves a 'challenge' of beating their previous time and getting more answers correct.
- yes, the repetition of the questions on a daily basis definitely built up individual confidence levels.
- Pupils have increased in quickness and number of correct answers, particularly the poorer children. I selected 'Boxes' randomly to address weaknesses in this particular class - with a positive outcome. Used activities individually to track and encourage quick recall and as whole class sessions - where I called out a question it was to encourage accuracy rather than speed.
- Yes, the flashcards were very beneficial for helping pupils to improve their numeracy. They encouraged pupils to use a range of strategies to calculate answers, consolidate concepts and improve their scores and times.
- The flash cards were great - with the class we focused on the part of the sum that was to be changed, for example just the units digit or just the tens digit etc. This really helped the children focus on what part of the sum they were doing and also helped them to realise that the other digits within the number would not change.
- I believe that the flashcards were extremely useful in helping the children improve their mental maths skills. The children kept a record of their scores and the majority of them had improved throughout this trial.

- The flash cards at level 1 offered a wide range of questions for a range of abilities
- yes, they enjoyed the online practice, with greater motivation to get better/faster
- These cards were great, the children really enjoyed using them. I also found them useful for revisiting areas we had covered previously in the year and keeping their skills sharp.
- Yes. They were easy to use at the start of lessons. The repetition of the task helped children and they definitely got better over the sessions. It also became a great way of discussing various strategies to work certain ones out. It was a real motivator for many kids, especially the able ones.
- yes, as they have to use different strategies
- the challenge was to get a quicker time – this increased motivation
- they helped to consolidate times tables
- pupils enjoyed the experience and were well motivated to score their best in a good time. They all benefited from the flash cards and it helped them focus on accuracy and speed.

• **were some sets not necessary at level 1?**

- all mainly ‘No’ and other comments include;
- the sets we used were all relevant due to the range of ability within the class
- I found all the sets useful at level 1 - they worked well with all the areas of maths we’d been covering in class.
- having a wide range of abilities in my class of 27 I think all sets were handy!

• **were there any sets missing at level 1?**

All mainly ‘No’ and other comments include;

- Yes, times tables beyond 5 (*this is an interesting point which is worth a clarification – the times tables represented in the Wee Red Box at level 1 are the 2, 3, 4, 5 and 10 times tables (with the 6, 7, 8 and 9 being reserved for level 2), since the design criteria for the content was to equate a CfE level 1 with a quality 5-14 level B (and a CfE level 2 with a quality 5-14 level D)*)
- could have made more use of multiplication and division flash cards for each of the multiplication tables (*same sentiment as comment above*)

• were any sets too difficult?

- all mainly 'No' and other comments include;
- none of the sets were too difficult but this may have been because we had recently focused on multiplication and division work just prior to starting the wee red box.
- they were challenging but not too difficult
- due to my maths group being the lowest set the adding and subtracting within 1000 was a bit too difficult for them, although they enjoyed giving it a go
- not for the majority of the P4s, but obviously 'yes' for a learning support group
- the adding and subtracting together initially were quite challenging – but I thought that was good. As I was mostly doing it as a whole class it was quite tricky for some of the less able. However, it made them think and did help them.
- the flash cards gave them an appropriate challenge
- the patterns set was challenging
- some pupils found + or – within 1000 more difficult though this provided challenge
- the children did find some of the sets challenging but this gave us the opportunity to discuss strategies we could use to work out the answer. This was particularly effective with addition and subtraction work as we worked on place value and effective strategies to use to make addition and subtraction easier.
- for the level my children are at, and apart from + and – within 1000, I think all the other sets were perfect for them
- no, my more able children really rose to the challenge of the more difficult sums

• were any sets too easy?

- all mainly 'No' and other comments include;
- 'easier sets' enabled pupils to increase speed and accuracy when working with basic number bonds
- the sets were not particularly easy but sometimes the children would memorise the answers and then the sets appeared to become too easy (maybe the idea behind the resource!) Maybe if the flashcards could be mixed each time, the children would be encouraged to think more about their answers (*this is worth a clarification – every wee red box has three layers of 20 flash cards, so when re-doing a set there's a 1 in 3 chance of getting the same 20 to do again, or a 2 in 3 chance of getting a different set*)

- no, I feel they were appropriately pitched for my class
- I used these with a P3/4 (most being in P3) and both were able to use them
- in a higher ability class maybe, but for this particular class they were fine as they gave less able children the chance to offer answers
- I had a P3/4/5 composite so all sets were useful
- yes for some of the P4's - but suitable for P2,3
- I have a wide range of ability and would find a use for all sets. The more able children loved using sets that were slightly easy for them when building up their speed in group challenges.

*The comments below appear to refer to practice sheets rather than **Wee Red Box** flash cards, which if so, would mean the pupils having a work sheet in front of them and working at their own pace, rather than doing flash cards mentally (which is harder);*

- assessment sheets were below final level 1 standard but proved good resources for homework practice
- halves and quarters on activity sheets too easy

• did the class watch any of the associated videos?

- all mainly 'No' and here are some other comments;
- yes we watched a couple of videos. This was an excellent resource to enable teachers to develop mathematical teaching strategies/approaches. I learned a lot, however I used a lot of credits downloading the videos.
- the videos were inspirational
- no, but we did print and use the 100 number square
- no videos viewed due to difficulties with technology
- my class had already participated with you in the live Glow Meet for the 8x table
- we did not watch the videos because they would not work on our system
- no, but I had a look at some

• would the pupils' numeracy skills have benefited from experiencing Wee Red Box techniques 'starting' or 'towards' the level (ie designed for P2 / P3)? If so, how?

- all mainly 'yes' (or 'probably'), and here are some other comments;
- Yes, I really think it would benefit the children to start using the **Wee Red Box** from P2 upwards - it would help their confidence in their own maths skills, and, help to further challenge higher achieving pupils
- the children in my class became quite competitive (eg boys v girls) and this made them more determined to get the best time so they tried harder - they also worked well in groups supporting each other.
- the poorer children within the class would probably benefit by giving them a bit more confidence
- I found the range of 'sets' of questions within 'working at' level offered a wide range of consolidating questions and more challenging
- yes, initially my class (P3/4) enjoyed working at the earlier stages as they became familiar with the resource. It was also a good way to reinforce concepts taught earlier in the year
- yes, they promote sharp mental agility and are great for brain training
- I think that they would have been good for differentiation
- maybe some of my 3's, although they worked well at this level and were supported and pushed on by the P4's.
- given my class was a triple composite I could have used 'towards the level' with different groups
- probably yes, due to increased competency if started earlier
- definitely, I just think that constant practice of these basic skills is necessary for children to progress confidently from stage to stage.

• is it appropriate to require 20/20 to pass a set of flash cards?

- All mainly 'Yes' and here are some other additional comments;
- 20/20 encourages pupils to answer accurately and act as an incentive. However, some pupils might find it difficult to achieve 20/20

- yes – I found it gave the class a challenge/ competitive element to maths work and this led to greater attention levels with all of the class remaining on task during our sessions.
- I think this was appropriate. We did the first run of a set of flash cards as a whole class so we usually got 20/20. Then when the children completed it on their own they kept a record of their own score.
- I think the children were really pleased that they had answered all the questions right, and if a mistake was made it was usually a typing error. If by any chance we did not get 20/20 the first time the children were keen to redo the set to get this score.
- I don't see why not, they want to do well
- Yes I think this makes them aim high
- depends on the child

There was one comment quite different from the norm;

- Not at all! Some children made minor errors/typing errors. It doesn't mean that they have not grasped the concept. Maybe a pass of 15/20 would be appropriate

There was one comment that was a user issue (caused by the flash cards getting out of sync with what's being typed);

- Our screen never showed us the first question and so we were always answering a question behind. Therefore we never got them all right on the screen, but I told them that they were right

• having scored 20/20 is the timing facility useful as a measure of better fluency? (while still scoring 20/20)

- all mainly 'Yes' and here are some additional comments;
- definitely yes, and increased their motivation
- yes my children loved the timing facility it became a class challenge to better their time.
- yes, pupils were motivated to improve their time
- I think the first few times the cards are used the timer could be turned off to help build up a bit of confidence, although the children did comment that we got faster answering some of the sets. I think though that for poorer children this was a pressure as the more confident children in the class were keen to beat previous times taken to complete a set of flashcards.
- yes – gave the more able pupils the challenge of bettering their 'time scores'
- yes, my children used the time facility to try and achieve more correct answers in a

shorter time

- yes, the children responded well to the timer and were keen to better their scores each time. It also enabled the class teacher to gauge if the children's fluency was improving
- definitely. It still gave the children something to strive to beat every time and promoted a sense of healthy competition.
- the times taken became a goal for the class
- definitely, the children loved the challenge of competing for a faster score. The 3s challenged the 4s and managed to meet their time...they were delighted with this. Then the 4s were more determined to get an even faster score again, very enthusiastic!
- pupils were given the task to complete correctly, then, improve their own personal time, with an element of competition developing between small groups of boys.
- yes, it encourages pupils to be confident and secure at that level
- the children enjoyed beating their time and it increased their motivation
- yes, we competed for best score and best time

• Does managing to get 20/20 for every set at level 1 offer a good preparation for level 2 and beyond?

- all mainly 'Yes' and here are some additional comments;
- gaining confidence in level 1 will prepare children to have a more positive approach to level 2
- I think it will help improve confidence but I think I would do the level 1 cards a few times before level 2.
- yes – it reflects a solid grasp of the main numeracy concepts.
- I believe that it does. I think all children like to have a 'pass mark' that's easy to keep track of.
- not sure since I haven't used level 2
- yes most certainly - demonstrates a good knowledge and foundation to build and expand on

There were three comments that were different from the norm;

- I wouldn't demand the children get 20/20 each time. I think an achievable pass mark

of 15/20 is a good indicator that the children are comfortable with the concept and are therefore prepared to move onto the next level.

- probably although we need to recognise that, while also looking for consistency, everybody can make mistakes and they are not bad
- depends on the child. I have different expectations for some children. We weren't necessarily looking for full marks but how to improve our best score

Any other comments;

- We use the paper based flashcards from your old system and we have just purchased your new "plastic" versions at Levels 1 and 2 (the actual **Wee Red Box** sets available on the website). I think these are an excellent resource and the children enjoy using them. As regards the on-line versions, I would prefer to pay a fee per year rather than pay for credits. As a small school we have a very limited budget and I like to know the cost up front rather than have to keep purchasing credits.
- My class really enjoyed using the flash cards there has been an improvement in their speed and accuracy and they have learnt new strategies from each other.
- I liked the on-line flash cards because they were big and clear. My class also liked to compare their scores and times for each section, as well as the 'Well Done' awards (trophies)
- I was glad to take part in the wee red box research. My class loved it and excited when we started the day with it. I'd love to use it again next year as I have P4's again and think they would be really motivated by it
- Our EAL pupils who are just beginning to use English greatly enjoyed the solely mathematical content of the flash cards and could be fully included in the sessions. They enjoyed competing with their classmates and showing off their speed and accuracy when 'word problems' were not present. Self esteem levels and confidence levels during subsequent maths lessons were noticeably increased.
- It was a great way to start maths lessons – in a class with more than one group it was an ideal way to work together.
- What a wonderful resource the **Wee Red Box** is!
- We really enjoyed using the **Wee Red Box**. Not only did it help to improve the children's mental maths skills but it also helped to increase their confidence in their own ability. We used the **Wee Red Box** as part of our class warm up most mornings and then the children completed the boxes individually. I would definitely recommend this resource to others and would look to use it next year. Thank you for letting us be part of your pilot, we have thoroughly enjoyed it.
- Practice in the basic skills – just what the children needed. It's a good way to keep a

focus on numeracy skills when focusing on other maths topics. In an end of year writing lesson on best things about P4 the **Wee Red Box** appeared in many reports

- My class enjoyed using the online flash cards and we tried working as a whole class in several ways;
 - I put in the answers that the children gave to me to progress through the 'quiz'
 - children put the answers onto the whiteboard so that the whole class was taking part at the same time
 - we tried small groups doing the 'quiz', and although these were fun activities they were not any more beneficial than our daily mental agility games that we already do as a whole class.

However when we went on to doing the work individually that was a different story. The children were motivated to beat the previous days score and their previous time (those who are long in the tooth like me know this works from many experiences years ago with SRA!). The sense of achievement the children have when finally reaching the elusive 20/20 is really great. I felt at the level 1 was very appropriate for my class, and although we have advanced to the 6, 7, 8 and 9 times tables (beyond level 1) the calculations were good for all the children and the lower ability children did the same as the higher ability – the difference being the time factor. My only comment against this is that there are maths games that do similar on the internet which are free. While this is a good resource the 'cost' factor for cash strapped schools would probably be the stumbling block. However, for parents at home with children who struggle with their tables this would be a good resource to buy into as the fact it is self motivating it would encourage children to use it. Glad to have been part of the research.

- grouping the tasks on activity sheets for practice and assessment linked to curriculum for excellence outcomes and experiences would have helped.
- we were using online versions with the computer some distance from the screen. When in groups, pairs & individuals - much time was lost transferring answer to person keying in answer - children would like a version for the interactive board that has an interactive keyboard adjacent on the screen to the questions, so that everyone can see and quicker times can be achieved in front of a group by individuals.
- the **Wee Red Box** is an excellent resource for both teachers and pupils. However a class teacher would need to use many credits to ensure all children get access within the time allowed, as well as to cater for different ability groups within the same class.
- I really enjoyed using the flashcards and found it a great resource, the children loved it and it promoted all the ideas of a curriculum for excellence. The only issue I had, which was nothing to do with your product, was that I am still teaching in the dark ages of no internet access in my classroom and am restricted to one morning a week in a computer suite. We managed to have it juggled round a bit for the purpose of this trial but otherwise the children wouldn't have had the benefit of it. I there anyway around this problem? I will not have internet access in the class for at least another three years when we get a newly built school.

- the **Wee Red Box** is a great resource that helped me focus on the importance of the basics in maths
- I think this is a great resource that helps children to think quickly and to retain and use different strategies for mental maths. I wish I had longer to use these. This time of year is busy with sports days, health weeks and school trips. It might have been better used at a quieter time of the year. Never the less, it has been very worthwhile and I would love to use it again
- this was a great resource and the fact that they were online helped with motivation as the children love anything to do with the interactive whiteboard. I don't think this would have worked as well with normal flashcards.
- all the pupils enjoyed the challenges and I would use with a class for short spells intermittently throughout the year.
- we used the '**Wee Red Box**' in different ways;
 - Class Teacher Call out - to promote accuracy
 - Whole Class using Smart Board - beginning of a Mental Maths session
 - Individual - to promote quick recall
- thank you for allowing us to take part in your trial
- a few times, when the answers for each sum were entered and it was processed after 20 questions, the computer said the answers were incorrect and the answers and questions did not correspond. We may have done something wrong. The resource has been very beneficial. Thank you for allowing me to use the resource. I was able to incorporate it within our maths lessons in a variety of ways.
- I found that having access to the set for an hour was difficult as I liked to check it was working before teaching the class and it sometimes was longer than an hour before I was using with the children. Also having to login to use in meant I could only have it on one computer whereas I might have liked to use it with a group.
- I enjoyed having the opportunity to trial the resource.

FOOTNOTE - before collating the responses from the 45 colleagues who took part in the research it was evident there had been IT issues in some of the primaries involved, more so than I found to be the case with the secondary research I undertook last term at **Wee Red Box** for Curriculum for Excellence level 4. I'm not sure why, it could be a mixture of reasons eg greater firewall protection in primaries, or, older software or browsers in primaries rather than in secondaries. I need to research this aspect more, and meanwhile here's one of the associated comments;

“Due to ICT issues which we were unable to resolve in time we really did not get to use the flash cards in class. From what I could see at home they were really good but unfortunately I have not been able to use them with the class.”

OUTCOMES from the P4 research for me to act on;

- The old fashioned **Wee Red Box** flash card techniques (as now harnessed to the internet) are beneficial, and should therefore be kept within the website portfolio along with the downloadable practice sheets and videos
- equating a CfE level 1 with a quality 5-14 level B seems about right, despite two feedbacks suggesting level 1 should go beyond the 2, 3, 4, 5 and 10 times tables
- the being **mentally fluent** (as promoted by the **Wee Red Box** flash cards)
= **good at numeracy**
= **better at maths**, is a valid concept
- investigate the possibility of printing out the questions
- encourage as many primaries as possible to use the **Wee Red Box** techniques at CfE level 1 in order to help promote good grounding for CfE level 2 (with pupils ultimately achieving **Wee Red Box** at Curriculum for Excellence level 4 being excellent enough)
- try to ensure the three sets of flash cards available for every **Wee Red Box** have an equal chance to be displayed
- investigate whether the timer could be turned off
- can each set display the current world record holder?
- can a fee system for **Wee Red Box** usage be set up independent of the credit system?
- although the feedback clearly demonstrates effective and beneficial whole class uses can the **Wee Red Box** be used independently by pupils at school rather than just at home
- investigate how the videos can be downloaded more readily with some systems

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