

Developing fluency in number bonds within 10 in Year 1.

My Aim:

- To ensure children leave Year One with excellent fluency when using number bonds WITHIN 10.

Why did you choose this area?

Linking to our whole school development plan to develop mastery throughout the school, staff expressed that they felt children had not retained number bond facts within 10. This was affecting their mental maths, slowing down the process when dealing with written methods and affecting the ability to make links in real life maths situations.

What did your project involve? What did I do?

- Met with Key Stage One staff to set an overview of aims and objectives of the project. All staff were enthused and happy to implement changes suggested
- Year groups planned weekly mathematics lessons together with a focus on number bonds each week. Developing links with concrete to abstract. Reference to Haylock and Cockburn Connective model 1997.
- Whole school homework policy has been changed to give more opportunities to use and apply number bonds knowledge through games based activities.
- Audit of resources available to develop the visual imagery when teaching and applying number bonds. List of websites with teacher resources and ICT games for children to access within the classroom during learning and exploring activities.
- Implementation of Maths Mastery assessment materials to support teacher assessment of maths throughout the whole maths curriculum.
- Raised awareness and plan in activities that can provide our children with real life opportunities to use and apply number bonds within ten. For Example: Who has made 'Super Seven' today? How many more children will I choose? Scoring games in P.E Spelling scores each week. Links to time ... how many more minutes? Etc.

What did you find out throughout carrying out your project?

The use of procedural variation when learning number bonds has been excellent for developing links with inverse and can clearly show misconceptions in some children's minds.

Examples below:

Example 1

Year 1

$$3 + \square = 5$$

$$\square + 5 = 5$$

$$\square + 1 = 5$$

$$5 = \square + 2$$

$$\square = 4 + 1$$

$$\square = 2 + 3$$

Example 2

If I know

$$2 + 3 = 5$$

I also know:

$$\square + \square = \square$$

$$\square - \square = \square$$

$$\square - \square = \square$$

Example 3

$$3 + \square = 6$$

$$\square + 5 = 6$$

$$\square + 0 = 6$$

$$6 = \square + 2$$

$$\square = 3 + 3$$

$$\square = 2 + 4$$

What has been the impact on your learners and on your school?

- There has been a greater focus in planning and Maths Mastery has developed well, using this as part of our differentiated activities.
- I have seen a noticeable difference in the quality and confidence in Year One teachers maths planning. One of our teachers who is early in their career is regularly making reference to Maths Mastery, using publications, and asking quality questions that demonstrate the ability to plan better quality lessons.
- Assessments of key number bond skills are in place to enable us to measure the impact from term to term. Can you share some examples of these?
- Gaps in resources have been identified and our maths leader is aware and there is a whole school plan in place to supply Year One and Two with Numicon. (Finances permitting – Friends association support is a possible avenue to explore too)
- Fluency has improved and children are beginning to make links with the maths in real life situations.
- Parental involvement has been more focused and comments made their child's progress in this area. Any examples of this?
- Children are developing the ability to make cross curriculum links and using and applying bonds with greater confidence.

What did you learn yourself? - Next Steps

- To inspire others to plan in opportunities throughout the curriculum that allows the children to use and apply their number skills. Using Haylock and Cockburn's diagram to support this.
- To regularly check resources and make others aware of the impact of variety and range of visual imagery.
- To focus on core skills and develop at Mastery level, rather than moving on too quickly.
- Increased fluency plays an important role in developing skills in CONJUNCTION with providing as many mathematical opportunities as possible.
- Assess children in fluency AND application of skills through exemplar Mastery documents.
- Roll out to the Key Stage and measure impact on Year Two curriculum.
- Develop 'fast maths' daily challenge.

Appendix 1

Websites for recalling number bonds in Year One

Teacher resources –

http://www.ictgames.com/brilliant_beadstring.html

http://www.taw.org.uk/lic/itp/itps/NumberFacts_1_4.swf

<http://www.topmarks.co.uk/Flash.aspx?f=Spinners>

<http://www.topmarks.co.uk/Flash.aspx?f=FSInverseMachine>

http://resources.hwb.wales.gov.uk/VTC/count_on_me/eng/Introduction/mainsessionpart1.htm

<http://www.amblesideprimary.com/ambleweb/mentalmaths/numberbond.html>

<http://www.topmarks.co.uk/Flash.aspx?f=triangularcardsv4>

http://www.hbschool.com/activity/numberline1_5_04/

Games

<http://www.ictgames.com/funkymum.html>

[http://www.strike.lancsngfl.ac.uk/download/file/Willow%20Class/Maths/ITPs/Hit the button v10.swf](http://www.strike.lancsngfl.ac.uk/download/file/Willow%20Class/Maths/ITPs/Hit_the_button_v10.swf)

<http://www.topmarks.co.uk/Flash.aspx?f=CalcBalancev5>

<http://www.ictgames.com/10pipe.html>

<http://www.interactivestuff.org/sums4fun/colquiz.html>

<http://www.ictgames.com/beaver.html>

<http://nrich.maths.org/content/01/06/game/MatchingCardsAdd.swf>

<http://nrich.maths.org/11114>

[http://www.bbc.co.uk/schools/starship/maths/games/park the pods/big sound/full.shtml](http://www.bbc.co.uk/schools/starship/maths/games/park_the_pods/big_sound/full.shtml)

[http://www.bbc.co.uk/schools/starship/maths/games/cross the swamp/big sound/full.shtml](http://www.bbc.co.uk/schools/starship/maths/games/cross_the_swamp/big_sound/full.shtml)

<http://www.iboard.co.uk/iwb/Alien-Pairs-to-10-733>