

## **The world of Teaching in a Mixed Age School**

### **Archimedes Maths Hub**

The object of this document is to identify key aspects of Mixed Age teaching strategies employed by schools across the country and is an extension of the work completed by Archimedes with North Yorkshire's Primary School Improvement Partnership. The action research project focussed on teaching for mastery approaches within key stage 2 (KS2). Research has been included to support and validate the work by schools in England.

Schools stated that the demands of the curriculum created challenges within classrooms, challenges that left teacher's feeling ... A school survey conducted by the Maths Hub revealed that teachers were looking for support regarding:

- Ideas in how to structure lessons so that mathematics had challenge for all.
- Concerns with TA teaching classes - teachers creating 2 x ppt and 2x resources (Workload).
- Split lessons – How to navigate differing Curricular Year Group content in same class.
- Separate inputs for each age group – support for pupils during task time.
- How to deliver one input to two age groups. (Mastery)

### **National Curriculum Framework**

2.4 Maintained schools in England are legally required to follow the statutory national curriculum which sets out in programmes of study, on the basis of key stages, subject content for those subjects that should be taught to all pupils. (p5)

### **School Curriculum**

The programmes of study for mathematics are set out year-by-year for key stages 1 and 2. Schools are, however, only required to teach the relevant programme of study by the end of the key stage. Within each key stage, schools therefore have the flexibility to introduce content earlier or later than set out in the programme of study. In addition, schools can introduce key stage content during an earlier key stage, if appropriate. (p100)

Within Mixed age schools, the flexibility to adapt the Mathematics Curriculum provides an opportunity modify the framework to meet the needs of pupils in each class.

### **Teaching for mastery in Mathematics in Mixed-Age Classes (January 2016)**

#### **Report of an Action Research Project Babcock LDP**

Mixed-age classes occur in different schools for different reasons, but mainly fall into one of the following four categories:

- Only class in the school with this age range – could be two, three or four year groups in the class (small school)
- One age group split between two classes, one with an older year group and one with a younger year group.
- Three parallel classes in the school with this age range – two year groups in each class (one and a half form entry)
- Mixed-age class (two year groups) in a school with two single age classes for the same age range (one and a half form entry)

Teachers in the project focussed on adjusting the structure of lessons in order to cater for a mixed age class and found the following:

- For two year age groups, the curriculum is closely matched and it is often possible to start with the class together and then attend to the specific year group objectives through a number of different strategies

including questioning, the use of different numbers in tasks and the use of rich tasks with different expectations related to outcomes.

- When the teachers decided they needed to teach the year groups separately, they chose to do this in one of four ways:
  - Separate teaching input on the same day.
  - Separate teaching input on alternate days.
  - Separate teaching input as needed.
  - Separating the year groups and sending the older year group to join a matching single-age class.
- **Use elicitation tasks:** assessing learners' prior knowledge before you start teaching will help you decide when to use whole-class teaching and when to teach a year group separately.
- **Support learners to work independently:** learners need to be able to work without an adult if you need to focus on the other year group. Focus on encouraging collaboration between your learners so they can support each other when you're focusing on another group.
- **Pre-teach:** help struggling learners work at the same pace as their peers by giving them extra attention before you start the main lesson.
- **Use rapid support and intervention:** provide extra support as soon as a learner needs it. Be careful not to attach any negative stigma to learners who need pre-teaching or additional intervention.
- **Question effectively:** use careful questioning to prompt learners to think more deeply about their learning. Encouraging and developing talk in the classroom will help learners build their communication and reasoning skills.
- **Give effective feedback:** use formative assessment to support your learners and adapt your teaching to meet their needs.

## Maths No Problem - Dr Yeap Ban Har

### Three Models;

- **Toggling:** let one year group do independent work while you focus on the other learners. Then toggle between the groups. This model requires planning — you'll need to build in alternating independent tasks into your lessons.
- **Parallel learning:** teach all learners together to learn the same content and then challenge older learners with greater depth.
- **Centre-based learning:** divide learners into year-based groups. Then move between the groups to offer support and ask questions. Again, this model requires a fair bit of planning and coordination between groups.

### How to differentiate within a mixed-age class

- Differentiation strategies meet children's individual needs while keeping the whole class learning at the same pace. Differentiation is especially important in mixed-age classes as it allows you to teach all learners together. Not only will you avoid coordinating alternating independent tasks, your older and younger learners will have the chance to work together and learn from one another.
- The good news is, if you can differentiate within a single year group class, then you can differentiate in a mixed-aged class. Seriously, depending on your learners, a single-year class could have a more diverse range of learners than a mixed-year class.

### Principles of differentiating by *content, process and product* will still apply:

- **Differentiating by content:** vary your methods of teaching the same knowledge. One way to do this is by giving learners different instructions for the same task. Another way is to vary the materials given to

learners, you could provide concrete resources to younger learners and pictorial materials to the older year group.

- **Differentiating by process:** vary the way that children make sense of the learning. You can use questioning to differentiate by adjusting your questions depending on the year group. You can make learning accessible for younger learners and challenge older learners by using 'low-floor, high ceiling' tasks.
- **Differentiating by product:** give learners different ways to show their mastery of a topic. One way to do this in mixed-age classes is to ask the older year group to explain concepts to the younger learners. Older learners find mentoring empowering and younger learners accomplish tasks they couldn't do without the support of their older peers.

## Research

### The Power and Benefits of Mixed-Age Learning for Children (Montessori System of Education)

In a mixed-age group of children, the age range is between one and two years and sometimes even more. While same-age classrooms are the norm today, experts believe mixed-age groupings may provide learning benefits for both the younger and older children, both in the classroom and at play.

#### Benefits of Mixed-Age Classrooms

- **Child-centered teaching:** Each child is viewed as unique. The focus is on the child and his strengths and weaknesses.
- **Children learn at their own pace:** Children do not get labelled according to their ability as fast or slow learners. They learn at their own pace, with no fear of retention or failure.
- **Learning experience:** Children get into the habit of helping and learning from each other. Older children become mentors to the younger ones and this improves their understanding of concepts as well as their competence. Some may take on leadership roles in class. Younger children are able to do things helped by older children which they would not have been able to do with peers. They get the opportunity to observe and emulate older children. As they appreciate the achievements of older children, they are also motivated to achieve themselves.
- **Flexible curriculum:** The curriculum is less rigid as compared to traditional schooling. Younger children are exposed to advanced material and older children have the chance to review material designed for younger children.

In 1995, a study by **Simon Veenman** found that there is no empirical evidence that student learning suffered in any way in multi-age (mixed-age) classrooms. Students in such classrooms did not learn more or less than students in single-age classes. In fact, students in multi-age classes scored higher on attitudes towards school, personal adjustment and self-concept than students in single-age classes.

## Smit & Engeli (2015)

### Strategies for Mixed-Age Teaching

- The teacher's role: Teacher is a facilitator and a coach, in addition to being an instructor.
- Differentiated instruction: Learners in each age group engage in learning tasks appropriate to their level of learning.
- Socially collaborative classroom: Supportive classroom climate; students help each other and collaborate flexibly.
- Flexible grouping: Learning is flexibly organized in the whole class and includes teacher-led groups, individuals within groups, collaborative groups, and individuals.
- General learning topic: The same general topic/theme in the same subject is covered for all learners.
- The quality of the learning tasks: The learning tasks are more open-ended, explorative, and problem-oriented.
- Formative assessment: To observe and diagnose how a learner is learning and is intended to improve teaching and learning.

### Hyry-Beihammer and Hascher (2015)

- **Parallel curriculum:** students share the same themes or subjects but study the syllabus of their grade (year group); each grade (year group) is taught in turn. While the teacher is explaining a new task to one grade, the other grade is working silently on assignments adjusted to their group level.
- **Curriculum rotation:** an entire class studies the curriculum of one grade (year group) for one year; in the next school year, they follow the syllabus of the other grade (year group); grades (year groups) are taught together.

Year 1/2	Year 2/3	Year 3/4	Year 4/5	Year 5/6	Year 6
Curriculum does not have end points but is continuously taught to pupils individual needs until end of KS.					
NB: This approach would require a re-organisation of NC for Mathematics.					

- **Curriculum alignment and spiral curriculum:** similar topics are identified in different grade curricula; students share the same themes or subjects; the basic concepts or ideas that are taught in the lower grades (year groups) are deepened and expanded on in the upper grades (year groups).
- **Subject stagger:** grades (year groups) study different subjects; each grade (year group) is taught in turn.
- **Whole-class teaching:** grades (year groups) study and are taught the same subject at the same time and use the same material.

### Lesson Design (Current Practice)

#### Current Suggestions (generic)

- Working alongside a Teaching Assistant.
- Whole class learning together.
- Two teaching groups rotated.
- Assessment for learning prompts.
- In lesson and same day intervention.
- Pre-teaching. ...
- Manipulatives and representations.
- Mathematical talk, scaffolding.

### Top tips

- Plan a variety of activities which may run concurrently and cater for children who are developing the ability to concentrate for increasing periods of time.
- Provide activities, games or toys which children have access to at any time to ensure everyone can remain involved.
- Encourage older and more confident pupils to act as mentors to support their younger classmates.
- Keep groupings flexible; they may change from activity to activity over the course of the day.
- Consider the use of a general theme allowing a whole class introduction but then plan age-appropriate activities within it.
- Use open-ended and exploratory topics so that children can learn and explore at their own pace.
- Remember that if your children leave school happy, you have done a great job.

## School Strategies

1. Whole class teaching supported by teaching with low threshold, high ceiling. This meant that all of the children within the class could access the learning and it could be extended further through extension opportunities.

Children during independent learning were provided with three challenges. They were guided to select appropriate tasks and use their mathematics toolkit boxes to not only support them but to deepen and reason about their mathematical learning.

The episodic approach, teachers would often start by teaching the whole class using chosen mixed age planning and would then 'peel off' throughout the lesson, deepening the learning.

Higher attaining learners start on their challenge independently while the teacher taught and consolidated learning with the rest of the class, once these pupils had consolidated their learning the teacher would teach the higher attainers and extend their learning further.

During the input, the children were often taught in mixed attainment pairs, this encouraged the children to work collaboratively, using the toolkits and encouraged them to explain their reasoning.

Small group teaching occurred to address misconceptions, deepen and challenge pupils.

2. All classes are mixed age therefore we always follow the higher year group progression and match the lower year objectives where possible. All children are being exposed to the higher teaching, but complete tasks appropriate to their year group. If the objective does not appear in one year group, they will complete fluency in preparation for the topic next year. We have found this to be a strength especially with the more able children as they are being exposed to the topic and then in the following years are able to reason and problem solve. Barriers we currently have are if a child is working significantly below age related expectations ensuring the curriculum matches their ability and is taught by the teacher. Some classes have ranges from Y3- Y6 all in one class.

Year 3	Year 4
Year 3 Fact Fluency Session (TA)	Teacher Input
Teacher Input	TA assisting/monitoring independent work
TA assisting/monitoring independent work	Year 4 Fact Fluency Session (Teacher)

3. The mixed-age class approach involves keeping the two age groups separate within the classroom. Teachers would instruct one age group while the other worked independently. A carousel approach would be incorporated to navigate the needs of each pupil.
4. Textbook approach – Mixed -Age class is taught together (same objective, whole class approach), teacher exposition (modelling, scaffolding, questioning etc.) uses a combination of each year groups objectives (consolidate and deepen). Where objectives do not match, the year are taught the objective at appropriate level (consolidate, deepen learning). Pupils sit in mixed-age pairs for whole class section. Pupils work in textbook appropriate to their age.

Year 1	Year 2
Whole class introduction (Mixture of year 1 and year 2 examples)	
Year 1 Textbook	Year 2 Textbook
Small group teacher support	

5. Teach the year groups separately. Instead of an hour-long maths lesson a day, I now teach two 45-minute maths lessons, one for each year group, a class teaching assistant takes the other half of the class during this time for consolidation time, independent work, basic skills etc.
6. Teach to the higher year group, the school starts with the objective in the lower year group and works towards the objective in the higher year group. Where objectives do not match a lower objective is created to provide depth.
7. Each mixed age class is taught together, the aim would be to teach towards the higher of the two age ranges and support pupils who need further support of simplification of work (from previous year group objectives). Scaffolding is a vital tool in this strategy and the aim is to teach to highest objective in first cycle and deepen understanding in second cycle. Resources would need to be provided for both cycles.

Year 1	Year 2	NB Repeat pattern until Spring Term of Year of Year 5/6. At this point Year 6 complete prep work for SATs and Year 5 are taught separately in order to continue NC entitlement.	
Teach to Year Two objectives , simplify for pupils who need more support (including independent work from previous year group)			
Year 1	Year 2	Year 3	Year 4
As cycle one but independent work is designed to deepen and expand application of understanding of objective.		Teach to Year Two objectives , simplify for pupils who need more support (including independent work from previous year group)	

## References

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