Easy as 1,2,3

A project from the National Day Nurseries Association is empowering graduates to take the lead in settings to improve the maths skills and confidence of practitioners. *Meredith Jones Russell* reports

MAIN PHOTO: ISTOCKPHOTO

The National Day Nurseries Association's (NDNA) Maths Champions project asks graduates to take the lead in settings, using online tools and resources to raise confidence levels in mathematics among fellow practitioners, so helping them improve their skills and better support maths through play.

The two-year scheme was set up in March last year and is supported by funding from the Department for Education. Through the project, NDNA set out to recruit 20 graduates from among its members to participate in the pilot, and ended up with 66. Project leader and lead early years advisor at the NDNA Jo Baranek says that although such a high level of demand is surprising, there was always an expectation that practitioners would be keen to receive help for maths teaching.

'We chose to focus on maths because it came out as a weaker subject in the Early Years Foundation Stage (EYFS) Profile over the past five years,' she explains. 'The news recently has really reinforced the need for the project, too, with stories of people leaving school with low levels of adult numeracy.

'We realised maths was a weakness in settings compared to other subjects and a lot of practitioners felt fearful of it. We wanted to really try to raise confidence levels; maths is happening but it just needs to be developed, and that happens with confidence.'

The NDNA spent six months developing the Basic Key Skills Builder (BKSB), an online diagnostic tool providing an initial assessment of practitioners' maths skills, as well as more than 300 online resources that include ideas for maths activities, video case studies of good and outstanding practice, and an online noticeboard and forum for participants in the project to share experiences.

'It's about building on activities already in the setting,' Ms Baranek explains. 'We want them to find opportunities to pull more maths out of existing activities, like playing in the sand tray or digging in the garden.'

EARLY LEARNING GOALS

Early learning goals in maths focus on number – with children expected to estimate numbers and check quantities by counting up to 20 – and shape, space and measures, learned by measuring, weighing, comparing and ordering objects, and talking about time, properties and position.

'It could be something simple like buying tape measures for children to use indoors or in the garden, or encouraging them to use more mathematical language, like whether they're sitting in the front or the back of the car,' says Ms Baranek.

The NDNA is hoping to recruit a further 35 participants for 2014 and is encouraging its original 'champions' to complete research projects for the second year. This month, a new English Champions project will also begin, focusing on the literacy aspects of the EYFS Profile.

'We realised maths was a weakness compared to other subjects'

Maths graduate Ms Baranek will continue to work on the Maths Champions scheme, spreading her own 'passion' for maths through regular contact with all the champions to check their progress and feelings about the project.

'For most people, maths is like Marmite,' she says. 'Sometimes a bad experience in childhood can have a knock-on effect to adult learning life. Hopefully, as a result of this project children and adults are more likely to come out loving maths, and that's what it's all about.'

CASE STUDY: LOVERSALL FARM DAY NURSERY

As a converted barn on a working farm, the 60-place Loversall Farm Day Nursery in Doncaster was focused particularly on the use of natural mathematical resources in the outdoor environment for the Maths Champions project.

After completing the initial BKSB skills test, seven members of the staff team carried out a range of further audits and held a staff meeting to

discuss an approach to maths teaching specifically tailored to the nursery's environment.

Project leader Emma Kadziola says the nursery's outdoor space already provided many opportunities for children to develop their counting and number skills.

'Our outdoor environment is rich in mathematical print,' she explains. 'For example, in the bug hunting and bug mansion areas of our outdoor play space, the children use a range of recording equipment including tick charts, simple tally charts, and bug information cards that ask questions like how many legs the bug has.'

However, the staff also decided to introduce new, natural equipment, such as standing logs in various sizes for ordering. 'These worked well,' says Ms Kadziola. 'One child put a few smaller logs on top of one another to equal the same size as one of the larger logs. Another child used language like "small", "tall" and "long", and another ordered the logs by size and then found the flat "number" logs and placed them on the corresponding size logs (see picture).

'It was interesting to observe how they used open-ended maths resources with such deep curiosity. And all the equipment introduced aspects of mathematical development, but in a fun, non-threatening way.'

Everyday life

Ms Kadziola says the biggest challenge was making both staff and children realise that maths is an everyday part of life.

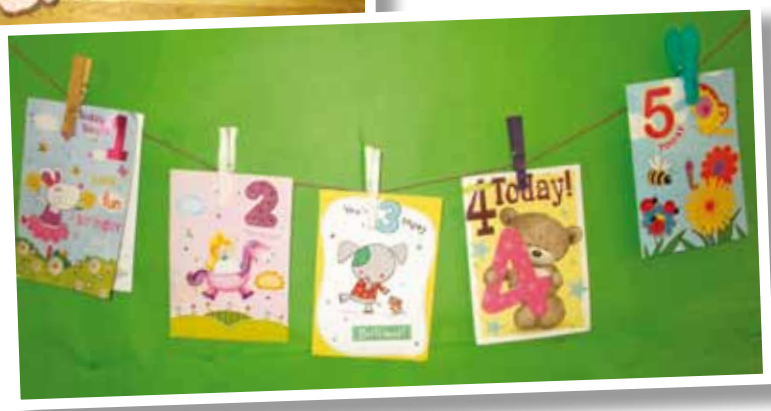
'As adults, we use it when we pour ourselves a cup of tea in the morning, when we check the time and assess how long it will take us to get somewhere, when we're driving, or even when we get dressed. In the same way, children's free play is about involving maths concepts in a natural way without them even realising, allowing them to access a range of maths activities day in, day out, with enthusiasm.'

The nursery will continue with the project into its second year. Ms Kadziola says, 'I've seen such a visible difference throughout the nursery. The project has helped practitioners take ownership of their ideas and implement them with enthusiasm. But there's always room for improvement.

'Some of the Maths Champions and I have just attended a Making Maths Fun conference at University Centre Doncaster and we are going to implement some of this training in the setting. We're also hoping to introduce more resources and continue to make maths more enjoyable, particularly through singing, movement and dance activities.'

CASE STUDY: NATURE TRAILS DAY NURSERY

Vicky Stancer, deputy manager at Nature Trails Day Nursery in Warwickshire, was one of two project leaders for Maths Champions at the setting. She signed the nursery up to the scheme because 'staff confidence in maths was through the floor. They could all do the basics but they didn't want to explain it to parents or really get into it.'



MORE INFORMATION

NDNA Maths Champions, www.ndna.org.uk/local-authorities/maths-champions

Loversall Farm Day Nursery aims to introduce maths in a natural way

Ms Stancer says reluctance to engage with maths is due to a deep-rooted fear that can be difficult to overcome for practitioners. 'It's because it's called "maths"', she says. 'There's a stigma attached to the word. I think it stems back to school and having to get a GCSE in it. If it was just called "number" or "shape", people would be less fearful of it.

'I understand it needs to be called that in schools, but in early years it's about so much more than just what we think of as "maths". It's things like playing "stop and go" on a tricycle, or using positional language like "under" and "over". Staff think that's communication but it's also linked to maths.'

Group discussions

Practitioners used group discussions, the NDNA's online resources and ideas from other nurseries shared via webinars to develop their own activities and a resource pack to be used by anyone in the setting. They also produced information leaflets to explain the programme to parents and provide them with ideas for maths activities to do with children at home.

The project has helped members of staff to see maths in unexpected places. Ms Stancer explains, 'They've realised there can be elements of maths in activities where there doesn't seem to be any. The maths boxes on our planning sheets are never empty any more. Everyone's confidence has really soared; it's been such a positive experience. Our younger, more newly-qualified members of staff especially have absolutely blossomed. Seeing that evolve has been amazing.'

With 12 members of staff participating in the project, Ms Stancer says there will now be a practitioner in every room at all times who will 'have their "maths hat" on'.

She adds, 'Sometimes these things peter out, but because there are so many of us I think it will be easier to keep it going. The staff have really taken responsibility for it and I think it will be something that can continue through the whole nursery.'

Ms Stancer will talk at the NDNA conference later this year about the nursery's participation in the project, and Nature Trails Day Nursery has registered to take part in the NDNA's English Champions programme later this month. ■