EVERYDAY MATHS

Workshop facilitators' guide

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Introduction to the Everyday Maths project

Research tells us that just increasing the amount we talk to children about maths is one of the best ways to help them learn.

Rather than asking parents to do school maths, we helped parents to think about ways to talk about the maths that is involved in their everyday family life outside of school.


Jo Rose


Tim Jay

The Everyday Maths Project started as a 21 month project, running from January 2013 to September 2014, based at the Graduate School of Education, University of Bristol.

Our approach is all about finding the maths in everyday life. We want to increase the amount of mathematical talk in families, by helping parents 'find the maths' in things they do with their children.

Our aims are guided by research suggesting that many parents find it difficult to help children learn mathematics. There are lots of reasons for this, which we explored during the project. The project culminated with the design and evaluation of a series of parent workshops, carried out in four Bristol schools, which empowered parents to support their children's mathematics learning through 'finding the maths' in everyday life.

This guide for workshop facilitators is intended to give schools all of the information they need to carry out these workshops for themselves. A range of school staff could act as workshop facilitators, including Parent Link Workers, Teaching Assistants, Learning Mentors, and Teachers, to name just a few.

Further resources are available at the project website, http://www.everydaymaths.org.

What do parents think about mathematics?

At the start of the project we spent three months talking to over one hundred parents about their thoughts around maths and about helping their children with maths. Not surprisingly, we encountered a wide variety of responses. However, some key themes were evident. For example, many parents told us that they find it difficult to help their children learn maths.

This was because:

1. Many parents were not confident with the maths that children were doing at school. Some of the methods used to do arithmetic, for example, were not familiar.

2. Many parents felt that they did not have enough information from school. They did not feel like they knew enough about the maths that children were doing in school, or how they were doing it.

3. Some parents were happy about the maths, but did not feel that they knew how to encourage their children to do more maths at home. This was especially the case when children found maths difficult, or did not enjoy maths at school.

Research has shown that children engage in a wide variety of mathematical activity out-of-school. However, children often find it very difficult to make links between the maths in their out-of-school lives, and the maths they experience in the classroom. Some research has been done to investigate ways to make links between home and school maths, but these have generally been limited by being based in the classroom. The Everyday Maths project brought these two areas of research together, by working with parents to help children find the maths in everyday life.

Some of the research underpinning the project can be found at http://www.everydaymaths.org/articles

The Everyday Maths workshops

The workshops are parent-centred. They respond to the interests, needs and contexts of parents. Therefore, the plan can be adapted to each school, and does not have to stick to a rigid schedule.

Some parents will be more interested than others in documenting some of their family activity with the rest of the group. Some parents will be more keen on small-group work, while others will prefer whole-group discussion. Being flexible and responsive to these kinds of preferences made for enjoyable and useful sessions. However, there are two key principles that will help make for successful workshops in all schools:

1 The leader will be a facilitator, not a teacher

The workshops are a space for parents to be experts. Parents need to be helped to feel comfortable making suggestions and sharing experiences and ideas. If the leader focuses on drawing ideas from participants, and being positive about all parent contributions, then participants will be more likely to contribute further. On the other hand, if the workshops leader gives answers and makes too many contributions to the discussion, then many parents will be put off contributing themselves.

2 Everyday Maths can be different to school maths

Many parents worry about trying to make sure that home maths is the same as school maths. They worry that maths-talk should be kept separate from science-talk, or geography-talk. They worry that they should always know the 'right answer', and that they should only talk about maths that has a 'right answer'. Parents also worry about making sure they always use the same routines and procedures as are used in school, so as to avoid confusing their child. The effect of all of this worry is often to stop parents talking about maths at home altogether. One of the main objectives of the Everyday Maths workshops is to help parents find ways to support children's maths learning that are different and complementary to children's learning about maths in school. Parents are able to help children think about maths in ways that teachers and schools can't - by showing children how maths is involved in diverse aspects of home and family life.

Plan for workshops

A successful recruitment strategy for the workshops depends on the local context of the school. You may already have some good strategies for attracting parents in for school events - in which case it will be best to do what you usually do. If your school often finds it difficult to attract parents in for events like this, then it is important to emphasise what is different about these workshops.

We carried out the pilot workshops both in schools that had high levels of parent engagement, where parents often attended events related to teaching and learning, and schools where parents were described as 'hard-to-reach', and who generally did not attend these kinds of events. We found that workshops in all schools had a good level of attendance, once parents understood what we were trying to do. When we first started working with schools on this project, many parents expected us to be running workshops to teach parents how to do classroom arithmetic. Our research showed that many parents avoid these kinds of events, because of a lack of confidence in their own abilities or because of bad experiences with school mathematics during their own childhood. These were generally the parents that benefited most from attending the Everyday Maths workshops. This is because the workshops focus on empowering parents, and helping parents to see themselves as experts in their children's learning.

You could try sending letters home to parents, puttting up posters near school entrances, including items in school newsletters, and offering parents a short morning meeting to explain the purpose of the workshops - all emphasising the *'everyday maths'*, parent-centred, nature of the workshops.

For the workshops, three sessions of roughly 1 hour - with no more than 2 weeks between sessions - works well.

The aim of the workshops is to give parents opportunities to share family activities, understandings of maths in family activity, and experiences of maths talk with children.

Session 1

The purpose of this session is to introduce the workshops. Focus on sharing the overarching aim of the sessions, which is to increase the amount of maths talk out of school. Make sure to allow plenty of time for questions, and for some discussion about the ways that parents currently do maths and maths-talk with their children. It's good to know where everyone is coming from.

1. Start with a short introduction from the facilitator, and an opportunity for parents to ask questions. (5-10 minutes)

2. Ask parents to talk in pairs/threes about an activity they do as a family. This should be something where there would normally be no maths-talk. The point of this activity is going to be to show that all activities that families engage in can be seen from a mathematical perspective, and provide opportunities for maths-talk. (10 minutes)

3. As a whole group, ask for some examples from parents. Then pose the question "What maths might be involved in these activities?" - and let the parents do the work as much as possible! Examples that we have used in workshops include; going to the M-Shed (an interactive museum in Bristol), going to the zoo, going swimming, doing some cooking.

It's useful, to begin with, to choose an example that all or most parents will be relatively familiar with. We have found that parents do this very well. With the zoo visit example, parents started by talking about the number of animals in each enclosure. But later contributions included ideas such as navigating around the site, planning a route so that children could see the animals they wanted to see within the time available, and relationships between the size and lifestyle of an animal and the amount of space they needed. Depending on the group, and on how much time is spent on each example, choose some further examples to 'find the maths'. (30 minutes)

4. For the next session - ask parents to think about family activities where there wouldn't normally be any maths talk. Maybe ask them to bring in photos/notes to share with group. In our experience, some parents like sharing photos and some don't. Some like taking notes and some don't. It's best to go with parents preferences rather than ask them to something they're not keen to do (at least if you'd like them to come back!). Make sure to give parents another opportunity to ask questions at the end of the session (5-10 minutes)

Session 1 links with the leaflet 'For parents - Let's start thinking about family activity'

Session 2

The purpose of the second session is to develop parents' thinking about the mathematics in everyday family activity. The main focus is on parents 'finding the maths' in the activities that they regularly take part in as a family.

1. Allow time at the beginning to introduce the idea of Everyday Maths to any newcomers, and to give all participants an opportunity to make comments or ask questions. (5-10 minutes)

2. Ask parents to work in small groups on one of the activities that they have recorded or remembered since session 1. Their task is to come up with as many mathematical questions or ideas as they can that relate to the activity that they have chosen to work with. Ask parents to use flipchart paper, post-it notes, marker pens and so on to make notes for sharing later. (20-25 minutes)

3. Ask each small group to share some of their ideas with whole group. Discuss how conversation starters - "I wonder...?" - "How did you...?" - can come from activities. Go back to small groups, and ask parents to come up with as many open questions as they can around the activity that they have chosen. (20 minutes)

Note: We have found that session 2 often brings some important issues to the fore. Parents often feel restricted at first by a lack of confidence with mathematical language, or by a feeling that they need to stick to 'mathematics' and not stray into 'science', 'economics' or 'geography'. This is an ideal time to help parents feel comfortable with the idea that any talk is good, and that talk that crosses boundaries between mathematics, science, history, etc., is likely to be really good conversation and great for children's learning. Similarly, parents often express worries in this session that they don't know the 'right answer'. Again, this is a good opportunity to reassure parents that good maths-talk does not need to end up with a right answer. For example, one discussion with parents in this session was about finding a rope swing. This presented an opportunity to think about pendulums - and we had lots of good maths-talk about properties of pendulums without ever knowing or remembering the exact formula connecting the length of the rope and the duration of the swing. The important thing was to think about what the properties might be, and to think about interesting questions.

4. Ask parents to try out a conversation with their child(ren) that they wouldn't have had before taking part in the workshops, making use of some of the ideas discussed. Emphasise the use of open questions, and letting children do some thinking. Make sure there is time at the end for questions and comments. (5-10 minutes)

Session 2 links with the leaflet 'For parents - let's start thinking about finding the maths'

Session 3

The way you manage this session should depend on how the previous 2 sessions have gone - be flexible and responsive to your participants! As this is the final workshop of the series, there may be a few different objectives:

1. Make sure parents understand the idea of Everyday Maths, and of 'finding the maths' in everyday family activity. Would it be helpful to explore the mathematics in some more activities?

2. Find out whether parents had conversations with children that they wouldn't have had before the workshops? Are they happy to share these with the group? What worked well? What didn't work so well?

3. If parents haven't had new conversations with their children, try and find out why not. What are the main barriers to trying out Everyday Maths ideas with children?

4. What do parents feel would be most useful to them to develop these ideas further in the future? Is there anything that was particularly helpful about the workshops? Use this as a chance to learn from your participants about how to manage any future workshops that you might carry out.

We have found that this session is useful as a way for parents (and facilitators) to get closure from the workshops; to ask any questions that have come out of the previous sessions, discuss additional activities, or to share examples of maths-talk with children.

Session 3 links with the leaflet 'For parents - let's start thinking about talking maths'

For further information, visit
www.everydaymaths.org

You can email us at:
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More ideas for everyday maths activities can be found at
www.nnparenttoolkit.org.uk

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