

## Who are the practitioner researchers?

The NNEM practitioner researchers are teachers in primary, secondary and further education settings and will conduct research in their own classrooms, focusing on developing aspects of mathematics pedagogy.

The overall aim of the project is to trial, capture, evaluate and share first-hand evidence of positive impact in the classroom which will be beneficial to the practitioner researcher's own school as well as other teachers seeking to raise standards in mathematics throughout Wales.

### Emma Baker



After gaining an honours degree in Mathematics, Operational Research and Statistics from Cardiff University, Emma taught mathematics in an 11 to 16 school.

She has been a secondary advisory teacher in Cardiff and has also worked for the South East Wales Consortium (EAS), as an advisor and a secondary mathematics lead. Since September 2017, she has been working in Caldicot School as the Assistant Director of Teaching and Learning.

Emma loves teaching mathematics, particularly algebra as learners often have a perceived fear of this area of learning and they are always amazed at how straightforward it can be once they understand the “why” behind the processes. She is always on the lookout for new hooks that engage, and real-life applications of skills to incorporate into her lessons. She hopes to focus on how to improve learners' retention of learning and memory and looks forward to working with the other practitioners.

### Emma Bishop



Emma studied for a PGCE in Secondary Mathematics at the University of the West of England. Her first teaching post was in Rhyl High school before moving to Ysgol Bryn Elian. She completed a Masters with Edge Hill University, and in 2016, was appointed Research and Pedagogy Development Champion at her school, to drive forward a culture of research and evidence-based practice.

She has decided to focus on the difficulties experienced by her learners, who struggle with the identification of the required approach, memory recall and application of their mathematical skills – most notably in the numeracy GCSE. Her research will look at the use of an ‘information mat’ which covers all of the key topics, formulae and methods that are key to solving problems at GCSE, and to see whether using this mat on a daily basis would give her pupils the confidence to try and tackle problems in class without her assistance or prompting.

## Fay Cosgrove



Fay came to Swansea to do a Psychology degree and has now lived there for twenty years. She recently began a Master's degree in Education and educational research has really caught her interest. She enjoys teaching challenging topics in the Year 6 curriculum, especially in mathematics and science.

Since visiting other classrooms and observing mathematics being taught, Fay is convinced that improving teachers' mathematics content knowledge and pedagogical knowledge are the key to raising standards for all children in mathematics. Schools are rich in good practice so her research proposal is a collaborative one.

Teachers' feelings about mathematics and their own ability to teach it are established as predictors of learner progress. Fay intends to explore how collaborative self-reflection using The Knowledge Quartet framework, developed by teacher educators at the University of Cambridge, might affect teachers' feelings about learning and teaching in mathematics and subsequently affect learner attainment.

## Imogen Dunne



After graduating from Cardiff University with a first-class degree in BSc Mathematics with Operational Research and Statistics, Imogen started Teach First in 2015. In the last year, she has taken on the role of Acting Head of Year 10 in her school.

To be an excellent teacher, it's important to constantly reflect on your practice and continue to grow as a professional, as well as an individual. This is something that can be learnt through others.

The research Imogen is carrying out is based on the PiXL strategy of "walking talking mocks". She aims to model problems on the board and then ask learners to answer similar problems with different numbers. Through increasing familiarity with numeracy-style problems, and actively modelling to learners how to solve problems, she hopes to see improvements in their GCSE numeracy scores.

## Rachel Wells



Rachel has worked at Milton Infant school in Newport since 2002. She has developed an in-depth knowledge of Foundation Phase pedagogy, with particular interest in Year 2. In 2015, she was seconded on a part-time basis to the South East Wales Consortium (EAS), for two years. This role included running a number of workshops and training courses, as well as providing school-to-school support to identified schools.

In her current role as senior teacher and mathematics lead practitioner within the newly amalgamated Milton Primary School, she continues to deliver training and support for staff, ensuring mathematical excellence.

Rachel has chosen to focus on children's ability to problem solve. She is particularly interested in whether it's their understanding of the mathematical vocabulary that is stopping learners achieve their mathematical potential. She plans to create a structured and systematic approach to teaching vocabulary within a mathematical context.

## Rebecca Christian



Twelve years ago Rebecca trained to be a secondary school mathematics teacher. She has worked in mixed comprehensive and grammar schools and currently teaches in a further education college.

Many of the learners Rebecca teaches have failed their GCSE mathematics several times. She aims to build their confidence and develop their skills. She also develops staff by mentoring and supporting NQTs, and preparing staff to teach the new specifications.

Rebecca's research will focus on staff development. In the further education sector it is rare for a mathematics teacher to be observed by a mathematics specialist. This means that the mathematical pedagogy aspects of their teaching may not be as well developed as the general aspects of teaching. She intends to use The Knowledge Quartet, which is an organising framework for developing and deepening teachers' mathematics knowledge for teaching, to address this issue.

## Ross Williams



Ross completed a primary PGCE course at the University of the West of England before taking up a teaching post in Hakin. He's a mathematics coordinator at the school and supports learning and tries to help teachers develop their pedagogy creatively.

For his research, Ross is going to investigate and develop his ability to teach effectively using manipulatives. A wealth of literature supports his belief that manipulatives can be an effective way to support learning. However, it's his perception that they are underused! He would like to make sure that in his lessons, learners develop and support other learners to gain a conceptual and deep understanding and that the manipulatives don't just do the work for them. He hopes that his research will support learners of all abilities in his class, but he is also going to focus attention on less able learners.