

# *Using manipulatives to support problem solving, intellectual curiosity and creativity in the secondary mathematics classroom*

## **Overview of the 'work group'**

Research suggests that the use of manipulatives has a positive effect on learning, particularly in terms of retention and problem solving. When students are encouraged to make sense of mathematics by using hands-on practical apparatus they are more able to transfer their knowledge to novel situations and also solve problems posed symbolically. (Carbonneau, Marley and Selig, 2013) Furthermore, there is evidence to suggest that 'curiosity-driven learning' fosters a classroom culture which increases enjoyment and supports academic success through building independence and a spirit of creative thinking. (David Hopkins, 2015)

This 'work group' aims to draw these ideas together in order to enhance teachers' pedagogy and practice. Participants will explore how a wide range of readily accessible equipment and resources can be used to stimulate intellectual curiosity, and support the development of creative thinking, in both teachers and their students, across a variety of areas of secondary mathematics.

This working group will take the form of an 'action research style project, with a requirement to complete a gap task between sessions. Participants will be encouraged to develop a sequence of learning that will be shared with others in the group.

The group will be led by Jeremy Dawson who is an experienced teacher with extensive experience of leading the teaching of mathematics across the full secondary age. He is also a local coordinator for the Further Mathematics Support Programme where he designs and delivers professional development sessions for teachers, and in school enrichment and extension events for students.

## **Dates of sessions**

11<sup>th</sup> January and 2<sup>nd</sup> February, 2017

Session 1 & 2: Introduction & Exploration of a wide range of practical equipment and ideas

28<sup>th</sup> June, 2017

Session 3: Sharing emerging practice- feedback on classroom based activities

12<sup>th</sup> July, 2017

Session 4: Embedding new thinking and pedagogy in the everyday mathematics classroom

All sessions will take place between 4:00 and 6:00pm at the **Durham Leadership Centre, Enterprise Way, Spennymoor, DL16 6YP**

To book a place, or for further information, please email your **name, school, address and contact number** to Wendy Truscott at:

[wendy.truscott@durham.gov.uk](mailto:wendy.truscott@durham.gov.uk)

or telephone 03000 265831

*Cost: £50 payable to Archimedes Maths Hub (to be refunded upon completion of the project)*