A recent move to a Singapore mathematics system in my small primary school has given rise to an increased focus on physical mathematics activities. This move to a mathematics policy following the concrete, pictorial, abstract sequence has been welcomed but has left many teachers struggling to create physical activities that can be facilitated by our limited resources. As my fellow teachers and I cast our nets to find solutions to this problem, I looked to a longstanding hobby of mine, origami.

Learning mathematics with origami (ATM, 2016) provides practical advice on how to teach mathematics using a freely available cheap resource, paper. Over the past week, I have engaged my upper KS2 class with some of the well described and clearly illustrated activities at the expense of only some scrap paper. There were around 15 KS2 activities and slightly more KS3 and KS4 activities, for me to choose from (in total there are 20 activities all of which are suitable for multiple key stages). I worked with those involving fractions and polygons and found them to be very effective.

The activities were accessible to my learners thanks to the simplicity of the techniques required. Only valley folds and mountain folds are required throughout the book and there is a well composed ‘Tips on folding’ section near the back of the book. As a result, my learners were engaged and enthused enough to enter into useful discussions about how paper folding could be used in future fractions lessons. These discussions evidenced their growing depth of understanding. After experiencing their first taste of mathematical origami my learners certainly wanted more and I will be using this approach again.

However, these activities are not lessons in their own right and, as the introduction states, “folding paper does not automatically teach mathematical concepts.” It is down to the teacher to decide how to employ the origami activities effectively in order to ensure that learning occurs. This book enabled me to create a concrete experience for manipulating the addition and subtraction of fractions for my learners but I had to reflect on the information in the book before I felt comfortable using it as a teaching and learning tool. I believe that this is not an omission by the authors. I feel that they want to make their readers think before they act and that because of this outlook they are right in saying, “a few words in this book can generate a lesson’s activities for learners.”

The book starts with relatively simple concepts such as uses for a single fold and develops into problem solving activities involving modular polyhedra. The mathematical concepts covered include: fractions, fraction-decimal equivalents, angles, polygons, 3D shapes and even a little volume. Throughout the activities the potential for deep understanding is facilitated through questioning, with useful questions often appearing alongside the easy to follow diagrams.

In addition to the discrete activities suggested in the book, as one’s own understanding and appreciation of the paper medium increases, one’s own ideas seem to spring forth. I found myself re-considering the use of rectangles to represent multiplication arrays due to this book and am now developing a lesson involving paper rectangles being folded in order to explore multiplication patterns.

That ability to make the reader think is the real strength of this book. Were it full of lesson plans, as I had originally hoped, rather than ideas, it would have been a weaker book. This is a book for those who wish to challenge their understanding of concrete modelling and those who want their learners to develop their relational understanding of mathematics.

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