### Pointless Compasses?

**Colin Foster** points us in the right direction.

MONG THE more pointless of textbook exercises, the following is a particularly spectacular example.

*Use your protractor to make a 40° angle. Now, using compasses and straight edge only, bisect this angle.*

Pupil: “Why not just draw a 20° angle?”

Me: “Well exactly!”

The problem with these textbooks is that the pupils who use them are more intelligent than the people who write them.

The task of making accurate constructions using just compasses and straight edge has more to do with historical interest. It does present an interesting challenge and a much-needed opportunity for some kinaesthetic learning in the mathematics classroom, but presented simply as a way of accurately drawing angles, a protractor is likely to be seen by pupils as far superior.

To motivate the use of compasses, pupils need to meet tasks where compasses actually allow you to do something that would be much harder, more time-consuming or impossible to do otherwise. The mathematics behind compass and straight edge constructions involves an iterative and useful way of getting acquainted with the properties of a rhombus, so I feel that such topics are a valid part of the curriculum, but I have struggled for some time to find meaningfull ways of introducing them. I have recently realised that I offer in the spirit of an invented meaning and purpose of compasses. I have recently tried a scenario that I offer in the spirit of an invented meaning the mathematics behind compass and straight edge constructions.

### Pointless Compasses?

The impact of school-led leadership

**Specialist Schools and Academies Trust**

**MOST PEOPLE** will agree that raising standards and providing all students with the opportunities to maximise their potential are central to a first-class education system, even if there are differing views on how this is achieved.

Since they were established in 1994, specialist schools have gone a long way in reaching this goal. There have been significant changes in the opportunities offered and standards reached by students. Research by the SSAT and the Department for Education and Skills from York University has shown that specialist schools have achieved significant improvements in terms of raw results, value added and contextual value added measures over time, and that the majority of the improvements, which result not only in showing improved results, and the value they add when compared with their predecessor schools, but are also making a positive impact on their students and their communities.

I think there are several reasons why we are seeing these positive developments, including the focus and individual identity a school can have, the opportunity for expertise business and community partnerships can bring, and the efforts of teaching staff and students.

However, there are other—perhaps more important, explanation. The impetus and momentum provided by the school and practitioners-led network of over 3,000 specialist schools and academies affiliated to the SSAT represents one of the best global examples of school-led transformation, a model that has had a marked impact in education.

The SSAT operates on a “by schools for schools” principle and it is schools and their leaders who lead, shape and develop its strategy and what it does and how it does it. Through regular contacts, specific programmes, the specialisms, the community element, and various groups and activities, schools are leading and developing the agenda and sharing their best practices with others. This is in contrast to more conventional top down approaches to school improvement, which result in schools being “done to” and reacting to change rather than driving it.

Professor Hopkins believes system leadership “refers to a school or school leader that is willing and able to shoulder wider roles and in doing so to work to improve the success and attainment in other schools as well as their own”. To me this also provides the impetus for the longer-term transformation of the learning agenda. This decade has provided the chance for schools to lead reform, and we can look ahead with confidence at this and at the heart of the SSAT’s work is the leadership of sharing and developing knowledge and experiences. Examples of this are two major programmes: Raising Achievement Transforming Learning and Leading Edges.

The first seeks to embed innovative and energising ways of school networking and learning together. The second has the potential to show what schools are capable of if they create the capacity to work with partner schools on their own improvement agenda. To date over 500 schools have been involved in the two-year programme, which is aimed at schools who have shown a decline in improvement and which matches them with high achieving schools who deliver the programme. Through the use of tailored and innovative methods, a strong focus on ICT, and a series of events, the programme is designed not as a quick fix, but to ensure long-term sustainable change. Schools taking part have already shown significant improvements in their results.

The second of the aforementioned programmes is ConquerMaths, established just three years ago, and is now working with over 1,100 schools. The programme offers funding to a high achieving lead school, which develops a network of local partnerships.

So, across the country, schools are working together to develop and deliver the ConquerMaths programme, on both a national and international level. The opportunity is not just to raise achievement within the system, but to develop the transformation agenda and our knowledge of both what works and how it works.

### Pointless Compasses?

Every teacher could do with an extra ‘pair of hands’.

**Designed originally to support struggling and less able maths students at home, the ConquerMaths™ UK Schools Edition is now being recognised by maths teachers up and down the country as the most valuable GCSE supplementary support program available online.**

Patrick Murray, an exceptional working maths professional, provides you with that “extra pair of hands” by giving your GCSE students internet access to 4800+ exercises covering learning and topic tests from Key Stages 3 and 4, together with worksheets, automatic marking and personal summaries. They can’t fill in their personal gaps whilst you monitor their individual work and progress online. No training is necessary for either yourself or your students.

“Our results have got better and every day we have kids using it, just because they want to get better at maths. You have to use it to see the impact it has.”

David Cook, Maths Teacher, Asham Grange Maths/ICT Specialist School, Middlesbrough.

We are using it not only for the pupils to do individual revisions but also for teachers to provide a specific homework. The beauty is that all I have to do is then check the statistics as the pupil gets automatic feedback on their responses. This saves me hours of time and allows me to provide specific feedback.

Shelah Weight, Head of Maths, King Ethelbert School, Folkestone.

*My students have shown a variety of difficulties, ranging from Autistic Spectrum Disorders, Specific Learning Difficulties, ADHD, Dyspraxia, Dyslexia and many, many more. These lessons with their audio and visual input have allowed my students to work on their individual needs without having to wait for assistance.*

Rox Horton, Head of Maths, Sally Oak MLD Special School, Birmingham.

This acclaimed program is currently available at an Introductory Fee of £3 per student for the 2006/2007 academic year. Please go to [www.conquermaths.com/schools](http://www.conquermaths.com/schools) for further information and full testimonials. Or telephone a member of the ConquerMaths™ Team on 01670 518088.