

Before teaching calculus

by Sidney Schuman

As a teacher of calculus to sixth-form students, I was aware of how the word calculus caused fear among many of them. Learning about calculus was always going to be a problem for these students. This problem can be avoided if calculus is introduced not in terms of gradient but in terms of area. We learn about area soon after we learn about number. Our understanding of area is continually reinforced by our experience so that the concept becomes successfully internalised. Compared with this, students may have only a shaky idea of gradient - they 'know' about it but it's not seen as part of their lives. This suggests that the integral power rule would be a better starting point than the differential power rule. All that is needed is a suitable method of obtaining the integral power rule independently and such a method does exist. In Power Maths both calculus power rules are obtained independently of each other, without any reference to the concept of the limit, infinitesimals or measurement of gradient. The advantage of using such a pre-calculus taster is that students gain confidence in the provenance and use of the two power rules, enabling them later to more easily accept the underlying theory.