Working at level 7 in maths

Children working at level 7 and beyond are likely to achieve GCSE grade C or above. At this level, mathematics lays the foundations for progression to AS Level or A Level. Children at level 7 will be able to do many of the following:

➜ justify their solutions to problems and look for connections with other problems

➜ they begin to appreciate the power of proof, such as justifying 'the square of all odd numbers is odd'

➜ explore problems by controlling and changing variables, for example, in science when investigating pressure, volume and temperature of gases, they keep one variable fixed and collect data about two others

➜ calculate percentage increase or decrease using multiplication only, for example, an increase of 20% can be found by multiplying by 1.2

➜ understand what a quadratic sequence is and how to describe the nth term, for example 1, 4, 9, 16, 25, …, n^2 (1 x 1 = 1, 2 x 2 = 4, 3 x 3 = 9 therefore this sequence can be expressed as n^2)

➜ solve simultaneous linear equations using graphs and algebraic methods, for example, 'Two coffees and a cake cost £2.50, one coffee and cake cost £1.75. How much does each cake and each coffee cost?'

➜ apply Pythagoras' theorem to a range of problems

➜ find the locus of a point moving according to a given rule

➜ use ICT to draw graphs, solve equations and create geometric patterns

➜ understand and use compound measures such as speed (distance travelled in a particular time interval) and density (mass of a particular volume)

➜ understand that all measurements are approximate

➜ design experiments and gather data to test hypotheses, such as 'if you are good at English, you are also good at history'.

What you can do at home to help your child make progress beyond level 6

At level 6 and above the nature of maths becomes more algebraic and abstract. This involves making and using formulae and developing knowledge of sequences and graphs. You could ask your child to explain their understanding of some of the maths problems they are working on and solving at school. This will help reinforce and consolidate what they know.

You could also encourage your child to:

➜ attend a maths event at school with you

➜ work out the best value for money when shopping

➜ watch documentaries and discuss the maths involved in climate change or other environmental concerns

➜ talk about their work with reference to a textbook or online resource such as BBC Bitesize or MyMaths

➜ watch the Royal Institution (RI) Christmas Mathematics Lectures, designed for children and young

people, that offer exciting ways of looking at maths problems

➜ listen to maths programmes such as 5 numbers, Pi, Golden Ratio, Imaginary number, Infinity.

Higher attaining children could be encouraged to:

➜ consider the maths involved in modelling real-life situations, such as building a bridge or the arc a ball makes when thrown

➜ find out why gambling is likely to cost you money

➜ explore the interest earned on a range of savings accounts, the cost of obtaining money for a mortgage or the cost involved in using credit, for example, children can be encouraged to use an ICT spreadsheet to calculate and compare interest rates

➜ join a maths club (at school or online, for example, NRICH), or take part in master classes (for example, RI) and other enrichment activities.

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