



Teaching for Mathematical Resilience

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What makes learners anxious about Mathematics and the way it is taught?



- Asking learners to perform tasks that require feats of memory at a rapid rate
- Requiring learners to memorise formulae without understanding
- High stakes individual testing
- Lack of vocabulary to describe difficulties
- Lack of opportunities to practise and embed learning in a range of contexts



How ASDAN methodology addresses Mathematical Anxiety



- Learners work through Challenges at their own pace; memory is rarely key.
- Challenges are within an applied context, they are presented in ways chosen by the learners
- Learners are encouraged to work collaboratively
- Learners are supported to review their own work and find ways to improve their approach (AfL)



How ASDAN methodology addresses Mathematical Anxiety 2




- Learners have numerous opportunities to apply their learning in contexts that are personally relevant.
- Metacognitive approach highlights that learning is an ongoing process for everyone.
- Learners build a portfolio of worked examples to demonstrate achievement.



The ASDAN Mathematics Short Course





Module 1 Probability and Statistics





10 challenges over 10 hours (1 credit)



...been covered in two national ...s, an election.
...ie way the two newspapers ...analyse the length of the articles, ...osition of the article and the size of

...ort or sporting event. What do ...ou? You can use newspapers or the ...ou should present your findings ...agrams and interpret your results.

...ability to be used on a stall at a ...signed to make a profit.
...t on the probabilities involved, how ...ge, the prizes you are going to give ...make a profit.

Mathematics

Skills I used:

- Learning
- Teamwork
- Coping with Problems
- Use of IT
- Use of English
- Use of Maths

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“Like everyday maths”



Learners feel more confident when they can see a purpose in mathematics – Sample challenges from the ASDAN Mathematics Short Course:

- Find out the cost of buying a new car using cash and by borrowing money. Compare the finance deal a garage would offer with a loan from a bank. Compare several similar models of cars and present the advantages and disadvantages of each method of payment.



“Like everyday maths”



- Make a game involving probability to be used on a stall at a fair. The game should be designed to make a profit. Try the game out and report on the probabilities involved, how much you are going to charge, the prizes you are going to give and why you think you will make a profit.
- Design and make a card matching activity that a group of students can play to help them improve their skills at one of the following:
 - recognising equivalent fractions
 - adding and subtracting fractions
 - changing between fractions, decimals and percentages



Tales of the Unexpected Maths



Apprentices report surprise at the amount and level of mathematics required at work so ASDAN Vocational Tasters include vocationally specific Challenges that employ mathematics e.g.

- Use your animal handling and measuring skills to collect data on animal growth over time. Present your data and compare it with published charts. Are your animals growing as expected and how could you maximise growth by changing food or housing?



Partnerships help



Collaborative working is a key way forward for learners and professionals. To develop a resilient approach ASDAN has worked with:

- Mathematics in Education and Industry (MEI)
- University of Warwick
- The Progression Trust



Network Support



- ASDAN provides regular opportunities for teachers and support workers to come together to tackle problems
- Resources made and used by frontline practitioners are shared on the Online Resource Bank www.theorb.org.uk





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