

Meaningful Learning Experiences

Strategic Commitment	✓	Part of a regional, ESF-funded 'Careers Local' programme
Curriculum Provision	✓	A real-life application for simultaneous equations
Employer Partnerships	✓	Engaging maths specialists from a local major employer
Reflective Young People	✓	Contributing to a whole school employability strategy
Informed Career Choices	✓	Highlight the value of maths in future life and work

Simultaneous equations given a real-life application by credit score specialist Experian

George Spencer Academy in Nottingham leads the East Midlands West Maths Hub and is one of the first 100 National Teaching Schools. In the project brief, the head of maths explained that, *'Students always struggle to understand algebra and never feel it has a real-life application. If we could link equations and solving simultaneous equations, including graphically it would really help to engage students in a topic most feel doesn't have a real-life application.'*

Experian plc is a consumer credit reporting agency with a large office in Nottingham and offers its employees opportunities to volunteer for community programmes. The company's Bureau Service employs a team of maths specialists who were happy to support this project.

A 'Maths Challenge Day' had been scheduled in the school diary and, alongside other workshops about money management, money at work and career pathways involving maths, a manager from Experian explained what credit scores are and how they can affect young people in the future.

This workshop provided the basis for a subsequent classroom task in which year 10 students used simultaneous equations to solve problems involving credit scoring. This was accompanied by a short, informal video with practical tips from the same manager who had visited the challenge day.

Students found the task difficult and support was required by teaching staff, but feedback suggests that students were proud to have completed a challenge about a real-life situation.

Benefits for the Students

- *'I got some correct answers, but I needed some guidance'*
- *'I am proud of working through it independently without the teacher'*
- *'I have learnt which future opportunities are for me'*
- *'I worked hard to understand it because it was confusing and hard to understand'*
- *'I have improved some of my maths skills and now know how maths can give you a future'*

Benefits for the School

- The project contributes to a whole school 'Grow Succeed Aspire' strategy
- Impact assessment included using the school's own 10-skills framework
- *'... only half the class could access questions 1 and 2 and only a few could access question 3 ... I am currently updating the ppt to give more hints based on the verbal feedback I got today from my students'*

Benefits for the Employer

- *'Experian takes social responsibility seriously and we like to give back to the community – and this school is part of the community'*
- *'They've been really engaged but they also had general questions about Experian and credit scoring – perhaps related to their personal experience'*
- *'A lot of people get scared about maths ... When they see it being used, it makes them think it's a useful tool ... Experian is a massive employer ... and it could lead to big things'*



Credit Limit Matrix

Income	Credit Rating / Score				
	Very Poor	Poor	Fair	Good	Excellent
None	100	100	100	100	100
Up to £10k	100	100	100	100	100
£10k - £15k	100	100	100	100	100
£15k - £20k	100	100	100	100	100
£20k - £25k	100	100	100	100	100
£25k - £30k	100	100	100	100	100
£30k - £35k	100	100	100	100	100
£35k - £40k	100	100	100	100	100
£40k - £45k	100	100	100	100	100
£45k - £50k	100	100	100	100	100
£50k - £55k	100	100	100	100	100
£55k - £60k	100	100	100	100	100
£60k - £65k	100	100	100	100	100
£65k - £70k	100	100	100	100	100
£70k - £75k	100	100	100	100	100
£75k - £80k	100	100	100	100	100
£80k - £85k	100	100	100	100	100
£85k - £90k	100	100	100	100	100
£90k - £95k	100	100	100	100	100
£95k - £100k	100	100	100	100	100
Over £100k	100	100	100	100	100
Expected Default Rate (%)	100%	100%	100%	100%	100%
Weighted Avg Default Rate (%)	100%	100%	100%	100%	100%

New Bank

New Bank wants to start offering credit cards. The Bank is going to launch a local advertising campaign and offer direct marketing through social media.

Cost of local campaign:	£2,500
Royalty for each successful social media application:	£2 per customer

It is expected that 5,000 people will respond to the local campaign and 10,000 people will respond to the social media campaign and open an account.

The customers who respond to the local campaign are more profitable than those who respond to the social media campaign.

Monthly profit:	
Local customers:	£8.25
Social media customers:	£9.10

Q1: How many months will it be before the Bank's profits equal its initial marketing costs?

Each month, the Bank must pay administrative fees and other maintenance costs per account.

Monthly cost:	
Admin cost per account:	£9.05

Q2: How many months will it be before the Bank's profits equal its initial marketing and admin costs?

The Bank decides to run the same campaign again. The costs and profits per customer are the same. This time, it takes 20 months before the profits equal the marketing and admin costs, at £12,000 total.

Q3: How many customers opened an account through each of the local and social media campaigns?

A series of workshops during a maths challenge day for year 10 students included an introduction to credit scoring by a manager from Experian. This provided the basis for a set of tough questions that students answered in subsequent classroom lessons. Accompanied by a short video message from the same manager, students had to apply their knowledge about simultaneous equations.

