CENTRES FOR EXCELLENCE IN MATHS

To further investigate the motivation of resit learners within the new framework for teaching maths that the Centre is undertaking in the 2021/22 academic year – "Maths your way"

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OUR PARTNERS

FUNDED BY

Working in partnership with the Education and Training Foundation to deliver this programme.

Acknowledgements

All the maths students at Grimsby Institute. You are the reason we do this!

About CfEM

Centres for Excellence in Maths (CfEM) is a five-year national improvement programme aimed at delivering sustained improvements in maths outcomes for 16–19-year-olds, up to Level 2, in post-16 settings.

Funded by the Department for Education and delivered by the Education and Training Foundation, the programme is exploring what works for teachers and students, embedding related CPD and good practice, and building networks of maths professionals in colleges.

Summary

This year we wanted to identify students' barriers to a facilitated approach of GCSE resit maths called 'Maths your way'. This was the first year that this framework was being trialled, so seeing the new barriers that arose were interesting.

There was a clear divide in how learners wanted to progress through their maths course. We found that students, especially during this academic year (post-pandemic, 2021-22), wanted 1-1 or group delivery. The students who work on computers regularly (digital, media, games etc) found their time on Century Tech much more beneficial, but those who weren't as strong with technology (hair, sport, construction etc.) felt like they needed more guidance.

We wanted to change our approach to identify techniques to help ground students who "spiral" from maths/exam anxiety. We explored techniques that weren't heavy on psychology as we wanted to be able to train our staff members effectively and quickly in spotting signs of distress and being able to ground the student as quickly as possible.

We worked with students on a 4-week programme, seeing them for 25 minutes once per week. Though we would love to explore the deeper-rooted issues of their barriers to maths education, we didn't want students to see the services offered by the Maths Motivator as an excuse to miss lessons.

We had a successful year and we managed to raise attendance of our students on average by 17.83%, which is moving in the right direction.

Contents

Background

Introduction

The Centres for Excellence in Maths is a DfE funded project charged with the research and development of teaching and learning in maths in Further Education. There are 21 Centres across England which are hubs for action research, training, innovation and the sharing of successful practice over the whole FE Sector.

In 2019, over 180,000 students in Further Education were entered for GCSE Maths because they had not reached a “Standard Pass” – grade four – at secondary school (Joint Council for Qualifications, 2019). Of those entered, only one in five achieved a maths grade four (JCQ, 2019). After entering Further Education wearing a label of failure, students often find themselves in a cycle of resits. Most are only released from this by turning 19, rather than achieving a pass (Bellamy, 2017). This policy has drawn a large amount of negative attention.

Our College

C4ME (Centre for Maths Excellence) is the name of Grimsby Institute’s Centre - we emphasise the FOR part of the programme, the fact that our raison d'être is to look FOR that excellence.

Grimsby Institute is part of the recently formed TEC Partnership. The Partnership presently comprises of the Grimsby Institute, University Centre Grimsby, Scarborough TEC, Skegness TEC, The Academy Grimsby, Career 6 and Modal Training. The Centre for Maths Excellence, C4ME, is based at the Institute’s Nuns Corner campus in Grimsby. (TEC Partnership, 2020)

C4ME, is based at the Institute’s Nuns Corner campus in Grimsby. The Institute serves areas which rank very highly for economic, social or education deprivation, recruiting a large proportion of its learners from three wards which rank in the top four of these measures. The catchment of the Institute includes many areas where unemployment is higher than regional and national figures. (Ofsted, 2020)

In the 2019/20 academic year, the Institute had 12,335 enrolments – including full time learners, part time learners, distance learning, community learning, apprenticeships and 14-16 provision.

Over fifty percent of the 16 to 19-year-old learners who enrol at the Institute have not achieved the benchmarked GCSE grade 4 (or C) in English or maths. (Ofsted, 2020)

In 2019/20, the maths cohort consisted of around 1,500 learners, with 750 enrolled onto GCSE maths resit.

Our maths department had a cohort of 809 students. C4ME worked with 170 students, 78 of which only worked with a motivator and 22 who worked with both a maths motivator and a maths coach (intervention sessions).

We had 4 out of 38 (at the time) who passed November resit and all 4 had worked with a motivator.

Our predominant focus was based with Level 3 students, but we wanted to make sure our full cohort benefitted from our services. We had 42 level 1 students (20 worked with a motivator), 82 Level 2 students (43 worked with a motivator) and 36 level 3 students (15 of which worked with a motivator).

The C4ME Aim

Our aim for our action research this year is to build upon the work we have done as C4ME over the previous years with CfEM. Looking at how students can overcome barriers to maths education by utilising coping techniques and strategies, identifying what has worked and how we can take these findings into the maths classroom.

Literature Review

Over the past 3 years, the C4ME team have been looking into students' barriers to maths education and why they have come about. This has been a holistic approach to understanding why students enter into the resit cycle, and what they need to overcome in order to achieve a passing grade. (Bell, et al., 2020).

"Maths anxiety is an acquired fear of mathematical situations or subjects which stops the brain being able to process maths effectively or even at all" (Johnston-Wilder et al., 2017 [1]). We have found over the years that many of our students identify with having Maths anxiety and this has been caused by "prior unpleasant learning experiences during pre-university education or preconceived negative notions formed outside the school environment" (Kotecha, 2015 [1]).

In order to help students overcome their barriers and anxieties they have towards maths, we first had to understand what barriers students face. We had done the work for this in previous years (see: One Size Does Fit All (Bell, et al., 2020)) so this was able to inform us going forward this year. Tobias (1995) says that learners who are labelled as being incompetent in maths are more likely to experience maths anxiety because of that barrier that has been put on them.

> "Addressing maths anxiety and developing mathematical resilience is best carried out over one or more sessions at the beginning of a course involving mathematics or statistics, or during a course, but not usually close to an examination because test anxiety is an additional confounding condition that frequently co-occurs with maths anxiety" (Johnston-Wilder et al., 2017 [2]).

Maths anxiety comes hand in hand with exam anxiety so if the student attends session just before their final exams, the student will feel all kinds of pressure that will inevitably cause a breakdown in their assessment of learning. The idea is for the student to take ownership of their maths resit journey and to engage with the Maths Motivators in order to get the support they need in addressing and ideally overcoming their barriers.

In 1972, Richardson and Suinn created a Maths Anxiety Rating Scale (MARS) that measures how much anxiety the student faces around maths (Richardson and Suinn, 1972). This is a gruelling 98-long-questionaire and would not fit the modern FE student as they would disengage upon seeing the length. The idea of a questionnaire to establish where the student lands with their level of maths anxiousness appealed to the information that we

looked at. We did not want to ‘reinvent the wheel’ so found an abbreviated maths anxiety rating scale of 23 questions developed by Mathematics Anxiety Research Group (Hunt, et al., 2011). (See appendix A.)

One theory to aiding the student overcome their maths anxiety is to “use of short formative assessment questions (SFAQs) followed by spontaneous feedback in lectures and classes”. Kotecha says that it will reduce anxiety levels by “enhancing their self-belief and self-confidence” (Kotecha, 2015 [2]).

Another theory that has been recommended is for “teachers to avoid calling on learners” and “forcing them to participate in discussions” but to have “more exposure to collaborative learning activities and group discussions” (Moodley, 2011).

For this year’s action research in 2021/22, we decided to look at a holistic approach (Miller, 1996.) helping students progress in maths, outside of scheduled lessons, where students had 1-to-1 sessions to explore their barriers. We understand that the environment of a classroom can determine the students ability to effectively learn (Higgins, et al., 2005) in a neutral environment. They had to be self-efficient to book an appointment with our Maths Motivators in order to work through any issues, trying out different techniques to relieve anxiety.

We wanted students to gain self-reliance (Farrant and Warren, 2021), we made the decision to see the student for a set period of 4-weeks, scaffolded them with support based on the information gathered, checked on their progress with their maths tutor regularly, slowly removing the intervention given so the students can continue their maths lessons with a renewed sense of confidence. We didn’t want the student relying on seeing the motivators every week because then the meetings become less about maths and more about the students’ life. We wanted to keep our sole focus with maths.

Methods

Qualitative

We used a variety of methods in order to understand what was working, and what wasn't. The nature of this project is qualitative because it is so personalised to each individual and their prior experiences surrounding maths. We do however, feel that it is important to fully understand what issues a student faces, and how they can manage their anxieties.

Cyclical

When we went through each step, we worked in a cycle in order to identify strengths to grow, and weaknesses to improve upon.

By keeping our methodology cyclical, we were able to change and develop as we went because we has multiple cycles running at the same time (a Maths Motivator would be working with anywhere from two to six students a day, and each of these students were treated as their own cycle.

Student Feedback

Student feedback became our most important form of data capture, as they are the reasons we are exploring barriers. Students were understanding of our purpose and of the ones we worked with, the majority of students were receptive to the help they received.

Its important whilst exploring any holistic approach that we ensure students are comfortable, open and receptive. If a student isn't interacting or trialling, we would speak to them to see if they were able to attempt what was discussed in sessions, or they were informed that the sessions are not mandatory and the support they receive from our team is completely optional.

Results and Discussion

Pre-empting risks:

We adapted a facilitated approach for maths this year (more detail found in our ARG1 report), but we found it important to discuss issues that affected our students motivation/engagement with their lessons from changing delivery models. We took on Century Tech this year and we received mixed feedback on it. We found students who were comfortable with technology (games design, digital, media etc) were more than happy to use Century, but our more practical students weren't as pleased.

The first question we asked students was to identify what type of teaching they had received (out of everything we had available) and then we went on to ask what was the most and least beneficial. Surprisingly, 20 more students had answered standard delivery over Century tech, receiving 35 more positive responses than workbooks, the third ranking as most beneficial.

On the flip side, we could see that 67 students had outwardly reported that they found Century to be the least beneficial to them.

Upon further discussion with students we worked with, we found that overall students felt as if they were abandoned in lesson and weren't getting the delivery that they had been hoping for. If we were in a pre-COVID state of research I wouldn't be surprised if the data was more favourable for Century – but students have been craving interaction and guidance from teachers that they have been without for 2 years, and I think that this massively impacted on student engagement.

Tracking:

The Motivator uses a tracking document to record all meetings, attendance, relevant staff attached to the student and identified barriers and support in place. The motivator is in contact with vocational tutors/success coaches to ensure we are working with the individuals best interests and are aware of any safeguarding attendance concerns which may affect attendance or progress. The tracker uses a colour coding scheme which enables the motivator to see any improvements / digression in attendance and mock scores at a glance.

The sign-up process:

We began by looking at how we could get the student to buy in to our services. We did this by having the motivators attend every maths lesson in the first two weeks of the academic year, to introduce the role to students, and what they could help with. The motivators also directed attention to a poster that they put up during the introduction that had a URL and a QR code that linked to a Microsoft Bookings page. The students were informed that they could access the support whenever they feel they needed it, and they could do it discreetly without their peers knowing.

The students are informed from the beginning that the motivator sessions work on a 4-week cycle. They will have 4 meetings with the motivator, 1-to-1, to create any scaffolding structure of support they need, to then slowly remove from session to session.

We found that students weren't as interested in the role this year as they had been in previous years because they haven't attended a classroom in roughly 2 years from the pandemic. We could see that students were more interested in being social around other people their age, something that they had lacked throughout the pandemic.

As lessons went on, we were able to revisit classrooms and speak with tutors about students they could see were visibly struggling with the environment and we were able to get the student to attend the 1-to-1 sessions.

We found that the Level 3 students were the toughest group to intervene with. There were 140 L3 maths students over all, but they were running on full timetables, many of them also had work/work experience or they were just disinterested in our services.

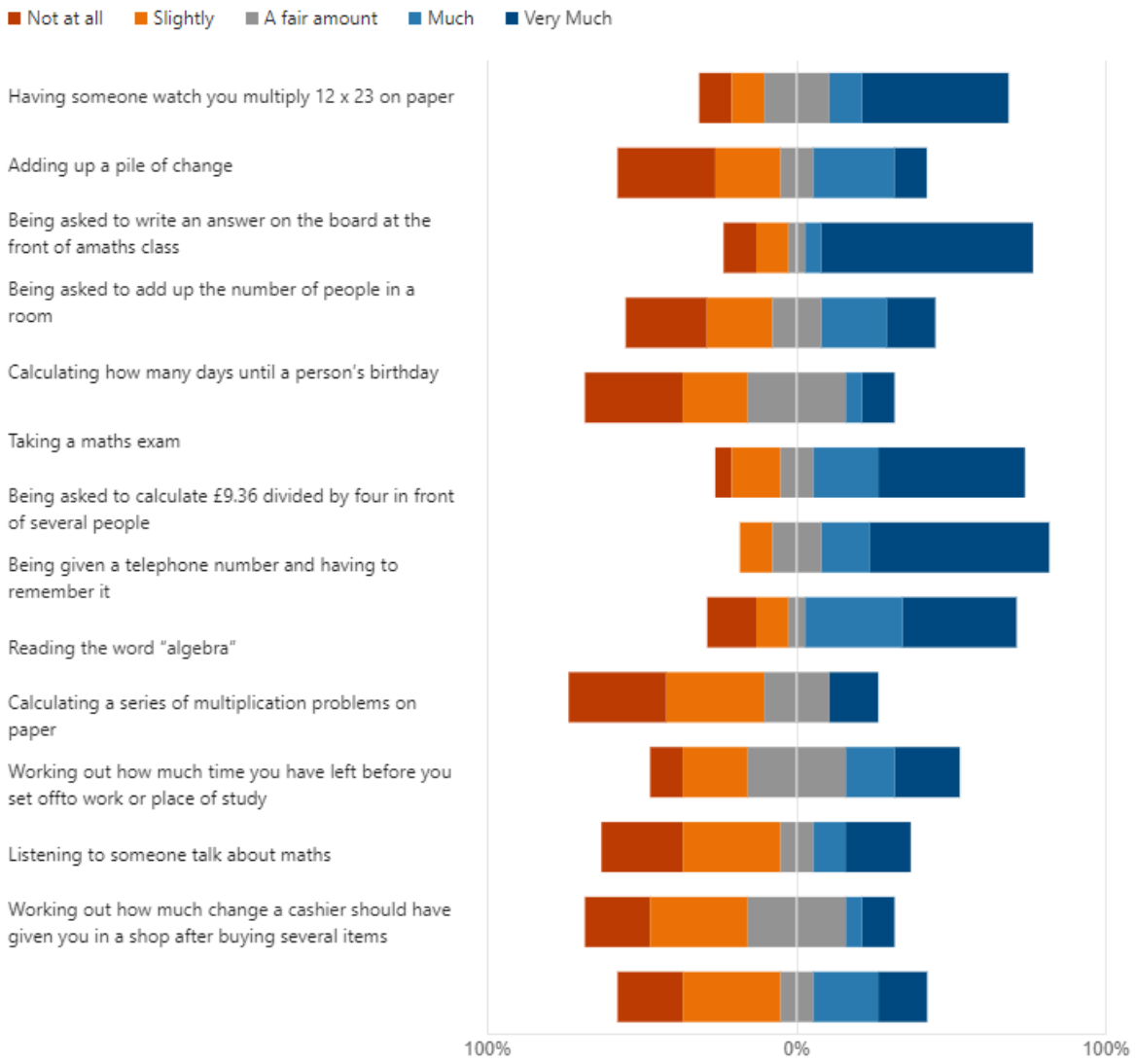
We faced some issues this year, we have only had one maths motivator in the second half of the year, and their services were booking up fast. In order to get all our students seen to, we rallied together as a team and took on motivator discussion where we could to support the increasing work load.

Surveying for insight:

We started sessions by getting students to complete a baseline MARS survey based on Richardson and Suinn's MAR-Scale that had been shortened by Mathematics Anxiety Research Group. The survey is 23 questions long and gave us an idea of where to start. At questions to see if any progress had been made within their 1-1 sessions. During the sessions the motivators used a workbook with the students, the "Maths Motivator Pack" [see: Appendix B]. The sessions would start with the student completing a baseline MARS (Maths

Anxiety Rating Scale) assessment and then writing a small blurb about their relationship with maths. This gave the motivator an idea of what support the student needs to overcome their personal barriers. The student and motivator would then look and work through techniques that could support them in overcoming the barriers identified in the first session.

MARS-Baseline Data of 27 students:

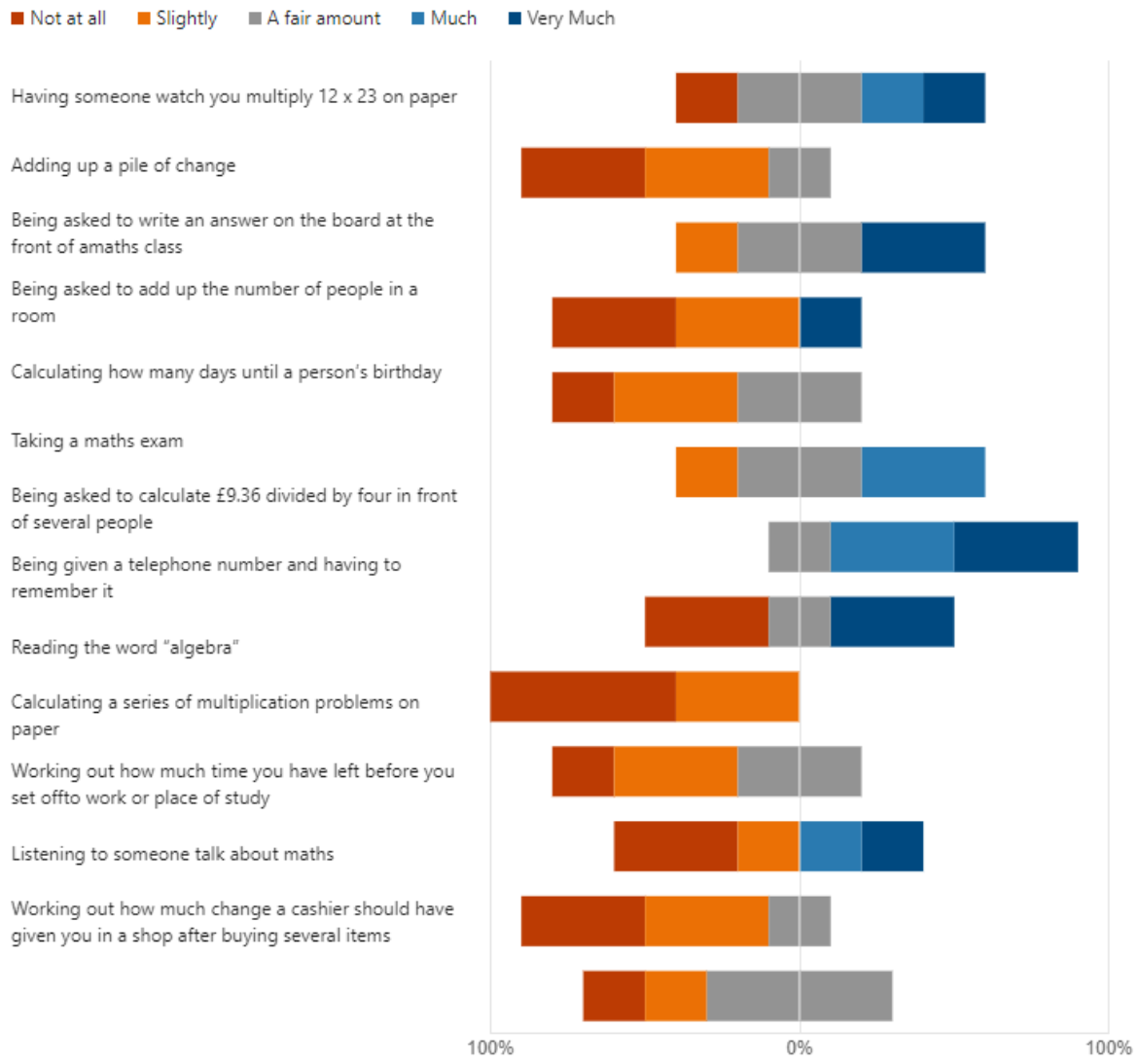


Here, we can see that the dominant data captured is that students have negative feelings towards maths in certain instances. This is a good starting point to see that there are patterns, and their anxieties are adding to their own resistance to learning.

In order to identify if the student has made progress, we use the same MARS survey that they used in their first session to see if their thoughts about maths has changed. We speak with the maths teachers to identify if their aptitude in lessons have improved in terms of attendance, attention and curriculum progress. Lastly, we speak with the student to see what

techniques they have used that works for them, how they feel about their maths lessons now, and identify any support they would need going forward.

MARS-Sign Off Data of 27 learners:



Here is the result of 27 students sign off survey. The data was filtered down to show these 27 students because, due to retainment issues, 27 students completed a full 4-week programme with completing both MARS surveys. We can see that students feel much better around maths in general, but there was still negativity around applying and demonstrating maths skills in real life.

If we can see the student hasn't made as much progress as hoped for, we have the ability to run through a second 4-week cycle of 1-to-1s exploring different techniques to see if we have missed anything that could help them, and try new techniques, even those that students have said works that we haven't yet researched.

If we get to the end of a second cycle, we are discuss with the maths tutor and a success coach or vocational tutor what we have been doing with the student, what improvement everyone has seen, and discuss what the next steps could be. We are then able to give the students one more cycle but with the other motivator that they haven't seen. This is to identify if it is the motivator that they weren't able to get a connection with and see if there is a path that hasn't been explored with the second motivator in charge.

Maths Motivator Pack:

To capture the information/thoughts/feelings a student has around what is being discussed, we used the "Motivator Pack" – this is a booklet full of tips and activities centred around wellbeing and anxiety for students to learn and practice throughout their week, then to return to the next session and discuss if it worked/didn't work/they have found something else/would like to try something else.

We used the first session to find out about the learner and we have a notes page that the front that we enabled students to write down what they wanted us to know about them. This could have been a story, a drawing, about maths, about their life, just anything that would help us connect to the student more easily.

Due to the sensitive nature of the meetings, talking about feelings and passed experiences around maths, it is very easy for a student to go on a tangent and drudge up things from their lives that we would then have to refer on to the safeguarding team, so we tried our best to always centre the students mind on maths and lessons, but we did add local helplines to the back of the motivator pack should the student feel like they need to access any external help.

Identified Patterns and Barriers:

During the motivators initial appointment, barriers to maths are identified and discussed with the individual to create an action plan. There are various reasons students have identified barriers to maths, some stem from early negative experiences in school. Some students preferred teacher delivery and felt online sessions hindered their learning, large class sizes and peer pressure have affected some students. Pressure to pass when needed to progress onto the next vocational level or University. COVID-19, poor mental health, bereavement and relocation have also contributed to creating barriers to maths and lack of confidence and self-belief in students

What was working? What wasn't working?

The Motivator found a few techniques that worked in a generic capacity. By explaining Maslow's 'Hierarchy of Needs' to students, we were able to focus around maths enabling students to visually see that they need to master the basics before moving on or their pyramid crumbles.

You wouldn't run a marathon without training first and you wouldn't let your phone run out of charge, the same applies to maths learning and exams. This enables students to see the bigger picture. Looking at a visual "fixed mind set vs growth mind set" diagram enables students to see how changing vocabulary from "I can't" to "I can" has allowed some students to understand that they have been creating their own barriers by dismissing any attempt at maths learning they are offered.

Helping the students understand how to develop and enhance their maths skills by using real life situations has shown the "Maths for Life" (see: Appendix C) is helping students include maths in their vocation and personal life. By marrying the content students need to understand in order to gain a grade 4, and the everyday maths that they unconsciously encounter, we have been able to relieve the pressure students feel by exploring where they use maths and how they can apply it to an exam scenario.

Students with high anxiety found using a "fidget toy" was helpful during 1-1 sessions, in lesson's and during mock exams, this helped re focus the mind and ease anxiety. We found that most students welcomed a break to reflect during their paper exams (our exam board is WJEC Eduqas, with 2 papers (calculator and non-calculator) each lasting 2hours and 15 minutes).

JCQ regulations allow students to have silent "fidget toys" in the exam We wanted to make sure every student had equal opportunities so offered this opportunity to everyone, but we found that we lacked the equipment, so we allowed students to take in pens that they could disassemble and reassemble. This did work for some students who sat the exam as it gave them a distraction long enough to feel refreshed and able to tackle problems again.

Students were asked to write positive affirmations and use these when becoming overwhelmed in lessons as reassurance. This worked well with very select few students, those who were more comfortable with their own company, and had a higher self-esteem. Students who lacked basic confidence in their self struggled with this task as they were asked to explore their own self-worth. Though the students must develop their own self-esteem in order to feel confident in tackling new experiences, this became more of a psychological zone, than developing maths skill and overcoming maths/exam-based

anxieties, so if the student wasn't receptive with the idea of writing themselves positive affirmations, we would move onto another confidence building activity.

Exam Fit:

We put on 'Exam Fit' workshops on the run up to our March mock exams, and the summer series. This was an opportunity for students (who had and had not used the Motivator services) to explore the exam paper, not focusing solely on content but getting through the exam.

We would start by giving each student an exam paper and get a timer for 15 seconds. The students task was to read the question, think of an answer and move on. Every 15 seconds the timer would sound and this was to alert the students to move on. This activity was meant to cause distress to demonstrate how flustered we can become if we panic.

The next section of the workshop was to have a look through the questions before tacking them, the standard "RAG Rating" approach. This was a chance for students to relax, identify their strengths and formulate a plan of attack on the exam paper.

The Motivator would be watching students going through the processes and intervene if they could see a student wavering. This meant that the student was disengaging from the paper and would likely do the same in the real exam setting. The motivator would interact with the student and distract them for 3 minutes. All the distractions were quiet as to not disturb the other students. They would use fidget toys, pens, and counting ceiling tiles.

Counting the ceiling tiles was a distraction that we enjoyed using with students, it kept them in a maths zone by reciting numbers. The students were also told to make a note of how many they counted to compare with the others that undertook the activity.

There were no instances where students didn't feel refreshed and able to tackle the exam paper again, and we received post-exam feedback from students who utilised a distraction in order to give themselves a break during the exam paper. A simple strategy with an effective result.

BUCKET

The Motivator found in some cases EAA's had not been completed therefore having a negative impact on students who have additional needs such as scotopic sensitivity and additional time in mocks leading to anxiety. Some methods like the hand brain model we tried didn't work, which led to conversations which delved to deep opening emotions that had to be referred to safeguarding.

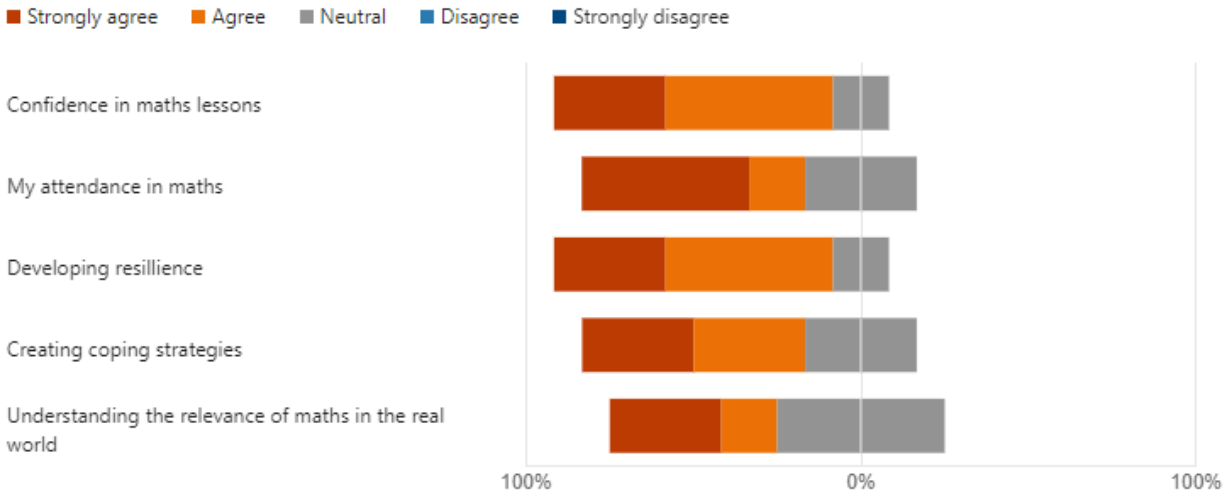
Results:

Unfortunately, due to the project being holistic, our results are very tailored for each individual and what they were able to get out of their time with the Maths Motivator.

We asked students who had signed off of our services to answer some simple questions. This was the result of 18 students completing the survey:

1. On the scale below, please state if you feel the motivators have helped you with... (0 point)

More Details



We can see that students have either said the services received were of no benefit or more positive. This showed that these students had been happy with the support they received and were able to build their mathematical confidence. Only 18 students had completed this survey which we found disappointing, but upon reflection perhaps we overloaded the students with surveys, creating a barrier to our own information gathering process.

We wanted to also understand why students weren't returning to our Maths Motivator sessions. Of the students who either never revisited a session or signed off early, we managed to speak with a random selection of 8 students to get a better understanding of what went awry.

4 of the 8 students had said that the services weren't right for them, and in their sessions, it was discussed that the help they needed was more general and not maths focused, so they had worked with the Motivator to access external services that are more fitting to the student (and of course, Safeguarding and vocational tutors were made aware of this).

2 student had admitted that they saw it as a way to escape lessons. We were explicit in letting students know before signing up that it would be completely out of lesson time. They knew but still tried their luck, to no avail for them.

Case Studies:

In order to show the qualitative information gathered, we put together a few case studies. These students were assigned a number, put through a random generator and three names were chosen.

Learner A

Learner A was referred to the C4ME team by their maths tutor after concerns they was not fully engaging in lessons and achieving his full potential. Learner A is a Level 2 Painting & Decorating student. Learner A is a popular student and thrives in his vocational area with both his peers and tutors. During Learner As first session with a motivator, we discussed his barriers to maths and identified he has low confidence and maths anxiety when handling money, mental arithmetic and has exam concerns. During sessions with Learner A, we worked on confidence building in maths and self-belief in his math skills, Learner A has been using these skills outside college by identifying and actively pushing themselves to interact with real life maths. Learner A has challenged himself with his learning which is evident in their ever-improving mock scores. Since accessing the C4ME team, Learner As attitude towards maths has changed and they now feel they are able to put 100% effort in and be happy he has worked hard to improve his grades.

Learner A's learning journey:

Maths Motivator tracking:

Student Number	Surname	First Name	Voc Level	Maths PL	Vocational PL	Success Coach	GCSE Maths Grade	EOY Target Grade	On Sign Up	Meeting 1 Date	Meeting 1	Meeting 2 Date	Meeting 2	Meeting 3 Date	Meeting 3	Meeting 4 Date	Meeting 4
[redacted]	[redacted]	[redacted]	2	[redacted]	[redacted]	[redacted]	2	3	80.00%	21/03/222	80.00%	28/03/22	81.00%	25/04/22	85.00%	9/5/2022	87.00%

Identified Barriers	Support	Outcomes	Review Date	Attendance	MPL Comment
[redacted] feels [redacted] has become lost in lessons and isnt putting 100 % effort into [redacted] work when using century, h[redacted] prefers a teacher delivered sessions.	Low confidence in his maths ability, low confidence anmd self esteem	Memory tasks to build confidence, anxiety techniques, use of money and confidence usuing mental maths. Exam anxiety.		78.00%	[redacted] has begun to ask questions in lessons and attend extra support essiosn in the hub with Vanessa and Nathan.

C4ME master tracking (learning journey):

								VINTER MOC	W YEAR MO	PRING MOC
Student Number	Last Name	First Name	Voc Level	Grade on Entry	EOY Grade	IA	November Resit Grade	Grade	Grade	Grade
592983	Wilson	Harry	2	2	3	1.83		1.67	0.35	2.12

C4ME Support		Exam Attendance				
Maths Motivator	Maths Coach	P1	P2	Final Grade	Progress over year	COMMENT
Y		Y	Y	3	1.17	

Learner B:

Learner B was referred to the C4ME team by their maths tutor for lack of engagement in lessons and attendance issues (64%). Learner B is a Level 3 Carpentry student and started with C4ME the day after their second mock exam. Learner B is in their final year of their studies at the Grimsby institute and wishes to pursue a career in carpentry abroad. Learner B has had a tough year with various external issues effecting their mental and physical health. Learner B had lost their motivation and confidence in maths. The Motivator worked alongside Learner Bs vocational area to trial, understand and develop confidence building and anxiety coping techniques. Due to their mental state being in disarray, the student felt lost with their maths learning journey because they were not learning in a way that was conducive. The Learner was working through “nuggets” (modules) on Century Tech, but found that they were spending more time on social platforms and reading eBooks than they were interacting with their studies. The Motivator had a discussion with the Maths tutor and by the following session the student had a new way of learning that they were able to access. Learner B likes to associate a maths skill with a practical carpentry skill, this is helping Learner B retain the maths knowledge to increase progression. Since accessing the C4ME services, Learner B raised their attendance in maths to 91% and has shown confidence in their maths lessons and has shown progression in their mock exams by accessing regular sessions with me and accessing the C4ME learning practitioner when needed.

Learner B’s learning journey:

Maths Motivator tracking:

Student Number	Surname	First Name	Voc Level	Maths PL	Vocational PL	Success Coach	GCSE Maths Grade	EOY Target Grade	On Sign Up	Meeting 1 Date	Meeting 1	Meeting 2 Date	Meeting 2	Meeting 3 Date	Meeting 3	Meeting 4 Date	Meeting 4
			3				3	4	64.00%	15/10/21	64.00%	22/10/21	71.00%	5/11/2021	83.00%	26/11/21	91.00%

Identified Barriers	Support	Outcomes	Review Date	Attendance	MPL Comment
Confidence/Anxiety - is in 3rd year of studies, has lost confidence in maths and is more focussed on vocational area. has said : prefers tutor based teaching rather than online (century) can become overwhlemed in lesson's and will not ask for help.	Maslow hierachy traingle, identifying self care and self worth. Extra maths tuition, 1-1 motivation appointments. Liase with tutors to arrange delivery in lesons for	is continuing to use the bucket method and is said is aware if adds more stress to 'self' bucket will overflow, is now booked into extra maths sessions which is already easing maths anxiety and boosting confidence.		91.00%	said has said thank you for referring her to C4ME for motivation and extra maths sessions. was happier in rsef that s now has acces to services.

C4ME master tracking (learning journey):

								WINTER MOC	W YEAR MO	PRING MOC
Student Number	Last Name	First Name	Voc Level	Grade on Entry	EOY Grade	IA	November Resit Grade	Grade	Grade	Grade
			3	3	4	1.92		1.92	1.31	2.28

C4ME Support		Exam Attendance				
Maths Motivator	Maths Coach	P1	P2	Final Grade	Progress over year	COMMENT
Y	Y	Y	Y	2	0.08	

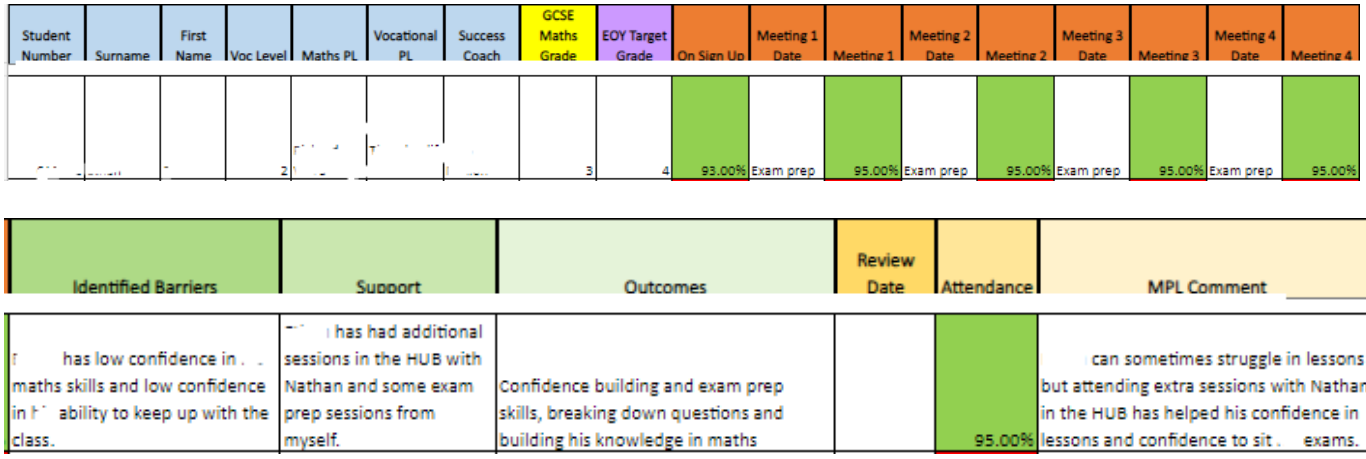
Learner C:

Learner C is in their 2nd year of studying at GIFHE. They have excelled in level 1 Hair and progressed onto level 2 Hair. Learner C had a maths grade 2 on entry into GIFHE, she progressed to a grade 3 after her first year studying maths. Learner C had motivational support and extra maths skill building support during her year 2nd year at college.

"Having emotional support to help with my maths anxiety and confidence building gave me the confidence I needed in lessons, my tutor worked with me on area's I struggled with and gave me extra resources to make me feel confident. I enjoyed attending my extra maths sessions as I felt and began to believe I could pass. I like the focus 15 wheel as I can see what segments I've mastered and what I needed to work on."

Learner C's learning journey:

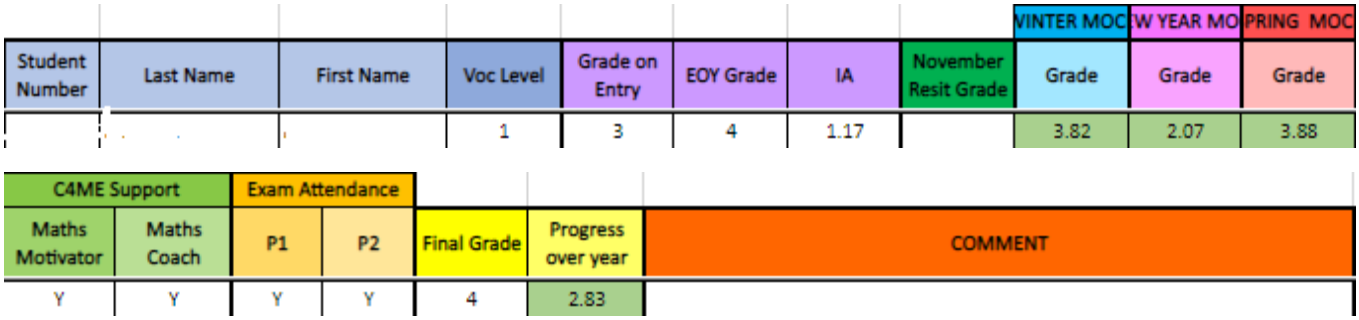
Maths Motivator tracking:



Student Number	Surname	First Name	Voc Level	Maths PL	Vocational PL	Success Coach	GCSE Maths Grade	EOY Target Grade	On Sign Up	Meeting 1 Date	Meeting 1	Meeting 2 Date	Meeting 2	Meeting 3 Date	Meeting 3	Meeting 4 Date	Meeting 4
			2				3	4	93.00%	Exam prep	95.00%	Exam prep	95.00%	Exam prep	95.00%	Exam prep	95.00%

Identified Barriers	Support	Outcomes	Review Date	Attendance	MPL Comment
has low confidence in . . maths skills and low confidence in h ability to keep up with the class.	has had additional sessions in the HUB with Nathan and some exam prep sessions from myself.	Confidence building and exam prep skills, breaking down questions and building his knowledge in maths		95.00%	can sometimes struggle in lessons but attending extra sessions with Nathan in the HUB has helped his confidence in lessons and confidence to sit . exams.

C4ME master tracking (learning journey):



Student Number	Last Name	First Name	Voc Level	Grade on Entry	EOY Grade	IA	November Resit Grade	VINTER MOC Grade	W YEAR MO Grade	PRING MOC Grade
			1	3	4	1.17		3.82	2.07	3.88

C4ME Support		Exam Attendance				
Maths Motivator	Maths Coach	P1	P2	Final Grade	Progress over year	COMMENT
Y	Y	Y	Y	4	2.83	

Understanding our results:

Over the year, the Motivator worked with 81 learners over the course of the year. We had found that of the 38 learners using our services around November Resit, 4 managed to achieve a passing grade and more.

We had 75 students who had received services from the Motivator entered for the summer exam series.

This was our results breakdown:

Grade	Number of learners who achieved
5	1
4	4
3	13
2	22
1	20
U	15

Although looking at the numbers from a clearly achievement view doesn't look hopeful, the working behind the scenes meant that these students did show up for the exam, as they were a 'flight risk' for anxiety/effort/issues.

Out of the 75, 5 students did not attend both papers and were not awarded enough for a passing grade (three students received a 1 and two received a U). This equates to 6.67% of our cohort. This shows that without the additional support offered by the Motivator, we would have had a much higher rate of non-attenders.

Student feedback has been very positive and the vast majority of our students sought out the C4ME team to discuss the exam they had completed, speaking about worries they have for the completed paper, but we were able to set their sights on the next goal and be proud of sitting their first real exam series since pre-pandemic.

Conclusions and Recommendations

Conclusions

In conclusion, we found that learners are looking for support but are unsure of how to understand why they are unable to access the GCSE Maths Resit curriculum. The students need time to explore what their issues are and work with a pastoral member of staff in order to boost their confidence and allow themselves to attempt learning.

Not everything will work for each student, as everyone is different and has differing needs. We have explored some techniques, such as counting ceiling tiles when they feel overwhelmed, or a fidget toy for exam distraction.

Attendance is a major indicator of students who do not want to interact with maths sessions. Of the students we worked with, the majority had no problem attending main aim courses, but compulsory courses, especially maths, were something they actively dismissed. Working with our maths motivator the students were able to turn around their efforts and show progression in attendance and in mock exams.

Recommendations

It is our recommendation that pastoral staff members are present and understanding of the students learning journey. We want students to feel empowered to attempt learning and understand that progress is progress, and the only thing they will lose by trying is inexperience.

Depending on cohort sizes, a capacity of two or three members of staff (based on our cohort of ~800 students) would be able to effectively discuss and support learners through their GCSE resit and encourage them to attempt learning regardless of how little progress may be made.

When students are in a negative headspace over exams or maths, bringing them back down through mild distractions can help them become grounded and then be able to articulate their issues, or even overcome them themselves.

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Appendix/Appendices

Appendix A

Appendix B

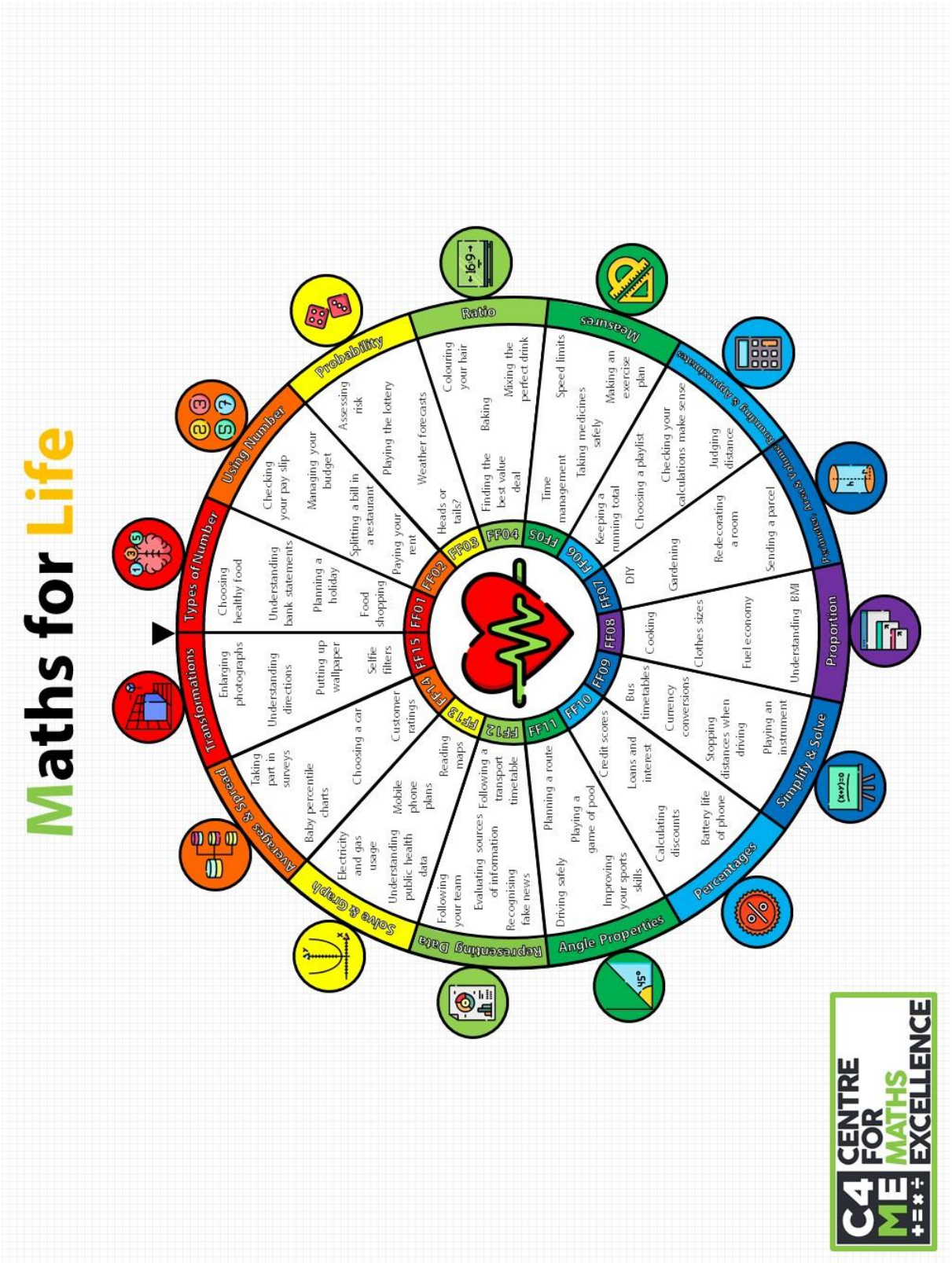
Mathematics Anxiety Scale-UK (MAS-UK)

		How anxious would you feel in the following situations?.....Please circle the appropriate numbers below.				
		Not at all	Slightly	A fair amount	Much	Very much
1.	Having someone watch you multiply 12 x 23 on paper.	1	2	3	4	5
2.	Adding up a pile of change.	1	2	3	4	5
3.	Being asked to write an answer on the board at the front of a maths class.	1	2	3	4	5
4.	Being asked to add up the number of people in a room.	1	2	3	4	5
5.	Calculating how many days until a person's birthday.	1	2	3	4	5
6.	Taking a maths exam.	1	2	3	4	5
7.	Being asked to calculate £9.36 divided by four in front of several people.	1	2	3	4	5
8.	Being given a telephone number and having to remember it.	1	2	3	4	5
9.	Reading the word "algebra".	1	2	3	4	5
10.	Calculating a series of multiplication problems on paper.	1	2	3	4	5
11.	Working out how much time you have left before you set off to work or place of study.	1	2	3	4	5
12.	Listening to someone talk about maths.	1	2	3	4	5
13.	Working out how much change a cashier should have given you in a shop after buying several items.	1	2	3	4	5
14.	Deciding how much each person should give you after you buy an object that you are all sharing the cost of.	1	2	3	4	5
15.	Reading a maths textbook.	1	2	3	4	5
16.	Watching someone work out an algebra problem.	1	2	3	4	5
17.	Sitting in a maths class.	1	2	3	4	5
18.	Being given a surprise maths test in a class.	1	2	3	4	5
19.	Being asked to memorise a multiplication table.	1	2	3	4	5
20.	Watching a teacher/lecturer write equations on the board.	1	2	3	4	5
21.	Being asked to calculate three fifths as a percentage.	1	2	3	4	5
22.	Working out how much your shopping bill comes to.	1	2	3	4	5
23.	Being asked a maths question by a teacher in front of a class.	1	2	3	4	5

Appendix B:

Maths Motivator pack - https://padlet.com/c4me/sr45wc0ml13ny2p4

Appendix C:


Maths for Life
Types of Number
Using Number
Probability
Ratio
Measures
Rounding & Approximate
Proportion
Simplify & Solve
Percentages
Angle Properties
Representing Data
Averages & Spread
Solve & Graph
Transformations
FF01
FF02
FF03
FF04
FF05
FF06
FF07
FF08
FF09
FF10
FF11
FF12
FF13
FF14
FF15
Choosing healthy food
Understanding bank statements
Planning a holiday
Food shopping
Checking your pay slip
Managing your budget
Splitting a bill in a restaurant
Paying your rent
Assessing risk
Playing the lottery
Weather forecasts
Heads or tails?
Colouring your hair
Baking
Finding the best value deal
Mixing the perfect drink
Time management
Taking medicines safely
Speed limits
Making an exercise plan
Keeping a running total
Choosing a playlist
DIY
Checking your calculations make sense
Gardening
Judging distance
Re-decorating a room
Sending a parcel
Cooking
Clothes sizes
Fuel economy
Understanding BMI
Bus timetables
Currency conversions
Stopping distances when driving
Playing an instrument
Credit scores
Loans and interest
Calculating discounts
Battery life of phone
Planning a route
Playing a game of pool
Improving your sports skills
Driving safely
Following your team
Evaluating sources of information
Recognising fake news
Following a transport timetable
Reading maps
Mobile phone plans
Understanding public health data
Electricity and gas usage
Baby percentile charts
Taking part in surveys
Choosing a car
Customer ratings
Selfie filters
Putting up wallpaper
Understanding directions
Enlarging photographs
C4 CENTRE FOR ME MATHS EXCELLENCE