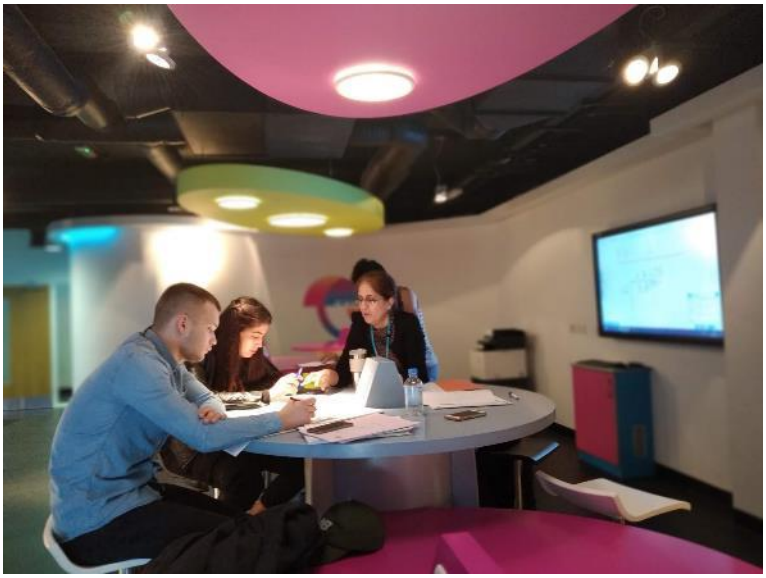

The Power of Coaching: Improving the motivation and engagement of maths re-sit students in FE Colleges

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Written by: Ashley Archer, Katie Fremlin

OUR PARTNERS

FUNDED BY

Department for Education

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Acknowledgements

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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

Over the last three years City College Plymouth has been investigating the impact that one to one coaching can have on learners, their perceptions of mathematics and the anxieties they have experienced around the subject. Throughout this paper, we will highlight our findings and the impact that the coaching programme has had on our learners, maths lecturers and their vocational areas.

One of the key findings from our research was an increase in maths confidence across the period of 6 sessions.

This paper will give you an insight into our action research including factors that have influenced our research and how we have overcome these barriers to participation.

Contents

Background

The action research group at City College Plymouth has researched the effects of one-to-one coaching sessions on the motivation, engagement and learning of post-16 maths learners, with a focus on building maths confidence and overcoming barriers to learning. Our initial research statement is as follows for 21/22;

“To create sustained improvements in attainment and engagement of maths GCSE re-sit and FS Level 2 students in post 16 settings by providing a coaching programme including support personalised to their diagnosed gaps focussed on underpinning maths mastery concepts, and to support with increasing motivation and confidence, as well as equipping students with tools to manage maths anxiety.”

Improving the motivation and engagement of maths resit students in FE Colleges is fundamental to support them to achieve. As an action research group (ARG), over the past 3 years, we have focussed on coaching as it is known to boost confidence, improve work performance, and build effective communication skills. The benefits can be even more vast and specific to an individual, and coaching allows for a tailored and focused approach for each learner.

We felt our coaching project needed to not only address maths skills specifically but also the wider confidence and resilience of our learners, and support them to overcome their individual barriers particularly in relation to maths anxiety. Our coaching project was designed to enable learners to take ownership of the sessions to encourage buy-in and focus.

City College Plymouth is an inner-city campus, with the student demographic reflecting this in respect to deprivation, access to services and resources. Following the conditions of funding for post 16+ maths education in England, many students are retaking their qualifications. There are often high levels of subject-related anxiety within the cohorts, which has increased due to the unprecedented times of the past 2 years. Shields defined factors that can lead to maths anxiety including “unrealistic expectations of students; gender bias; giving poor explanations; hostility, anger or intimidation; embarrassing students in front of peers if a concept is not understood; and, an insensitive or uncaring attitude” (Shields, 2005).

Currently, throughout all key stages, learners in Plymouth are below the national achievement rate in mathematics, and organisations within Plymouth are working together to overcome “The Plymouth Challenge” which focuses on Secondary School standards. “The percentage of pupils achieving ‘the basics’ in Plymouth is 58.8% which is below the national average of 59.4% and statistical neighbour average of 61.5%. The progress made by disadvantaged pupils is below that of non-disadvantaged pupils at the end of KS4.” (Plymouth City Council, 2019). A high percentage of our students will be in this KS4 category, as our FE College is one of the main providers for 16-18 learners in Plymouth and the surrounding area. Although there is no research at present, we predict that the covid pandemic will have increased the number of students needing support with basic numeracy and literacy skills across all key stages for the coming years.

Action Research Team

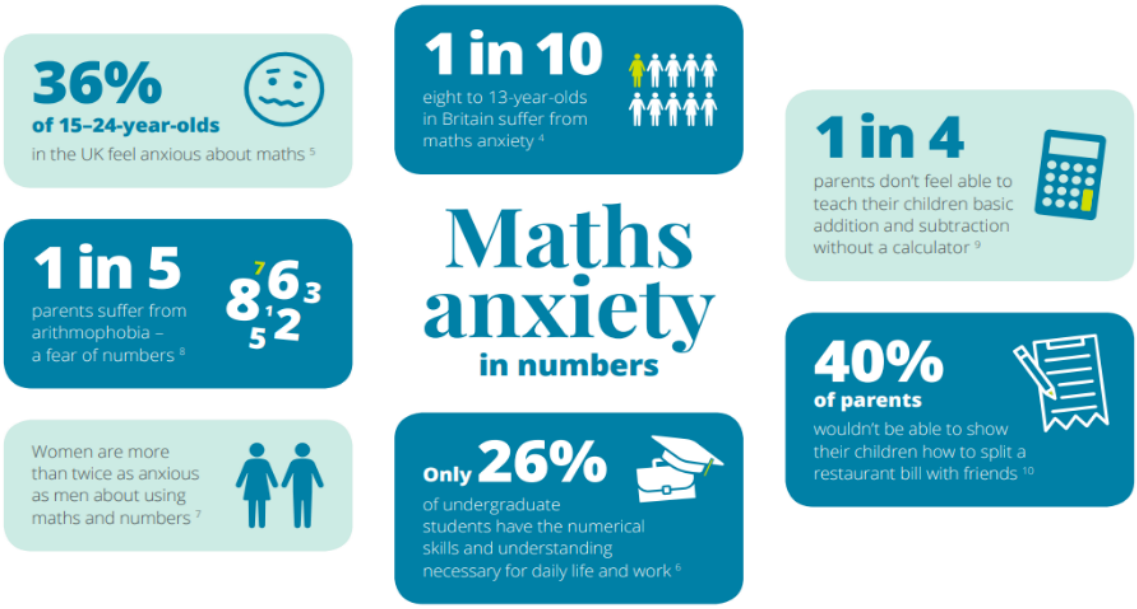
Our action research group has a wide variety of teaching experience with learners of all ages and abilities, in different subject areas, in specialist units and in vocational settings. The team is led by our Maths Centre Coordinator and Coach and includes members of the maths department and wider teams at City College Plymouth resulting in a rich blend of skills. By developing a team of coaches, we have been able to ensure successful partnerships of learner and coach based on the learners' specific considerations and knowledge gaps.

Literature Review

Over the last three years of the coaching project, we have looked to support our research development and impact with a number of different published research journals, articles and reports. Here is a short summary of these, which we found related to our action research and the importance of mindset and a holistic approach, not just the learning of maths. Alongside this we have embraced the knowledge and experience of our network partners, our colleagues and fellow CfEM centres to support our research.

MrBartonMaths (online) suggests Carol Dweck's work on mindsets has proven both popular and influential across schools over the last decade. The general thrust of her work is students with a growth mindset believe that their intelligence is not fixed, embrace mistakes as learning opportunities, and strive to improve through practice. We will be continuing to utilise a growth mindset approach in our coaching programme, as our ongoing findings suggest that it is a solid foundation on which to build our coaching project and is showing a positive impact on our learners.

As an ARG, we have experience of working with many learners and colleagues suffering from maths anxiety, and from experience have found this very prevalent in FE settings. The ARG were keen for a key focus of our research to be ways that we can help combat maths anxiety and provide learners with the tools they need to manage this. Samuel and Warner (2019) wrote an article called ‘I can Math’ and although it is focussed on an American system there are key elements that we can utilise for our action research. They state: Academic achievement in maths is an issue of great concern to educators and cognitive psychologists alike. Mathematical anxiety, a negative emotional response when encountering maths problems to solve (Richardson & Suinn, 1972), affects many students in all academic levels. For many community college students, this self-doubt about maths achievement becomes a self-fulfilling prophecy even for those who are otherwise excelling in their areas of concentration. Anxiety associated with maths situations could result in negative academic consequences for students and decreased interest in maths-related fields. Researchers (Beilock & Maloney, 2015) have argued that in order to increase student retention in maths courses and student interest in pursuing STEM disciplines, efforts must be made to mitigate maths anxiety.



(Image 1)

Pearson released the above data in 2019, and we found the statistic that 36% of 15-24 year olds suffer from some degree of anxiety around maths resonated with us as FE practitioners, as these are many of the students who will be resitting maths qualifications.

Morse (2009) suggests that to develop a coaching culture for maths delivery teachers must acquire new pedagogical habits and routines. She goes on to state that demands on teachers will be high. Time is a precious resource in an educational setting, and we will design a suite of easy-to-use resources whilst delivering time sensitive CPD to limit the impact on teacher time whilst still being worthwhile.

Dabell (2019) states that effective coaching is an important skill in any maths specialist's toolkit. Maths specialists need to have the leadership skills to raise standards across their schools and foster a positive culture around mathematics. The distinction between being a coach and being a mentor is an important one. We want to ensure that staff involved in the coaching process see its value to them as well as to the students, and by upskilling them to develop their coaching skills we hope to build on the staff buy-in from previous action research cycles while also embedding hours into their lecturing timetables to allow this to take place.

In The Little Book of Big Coaching Models, Bob Bates explains the differences using a 'learning to drive' analogy.

He says that:

- A consultant will advise you on the most appropriate car to drive
- A counsellor will address any anxieties you may have about driving
- A mentor will share their own driving experiences with you
- A coach will encourage you to get in and drive the car correctly

This analogy from Bates is why we chose a coaching approach over other approaches.

We decided to use Dweck's growth mindset approach over other options as the research suggests when students have a growth mindset, they take on challenges and learn from them, therefore increasing their abilities and achievement. The approach can also be simplified into easy to understand chunks and has proven successful for other CfEM action research teams.

Pearson (2020) has created a guide to tackling maths anxiety, which can be accessed at pearson.com. The guide draws on research and insights from leading experts across education, academia, business and the third sector who attended Pearson's 2019 Power of Maths roundtable to help address the issue namely, Bobby Seagull, Sue Johnston-Wilder and Susan Okereke.

This guide resonated with us as we designed our coaching programme, especially this from Bobby Seagull (2019) "I have witnessed how maths anxiety can negatively impact the competence and confidence of people in dealing with maths. This can sadly harm their ability to engage with maths for the rest of their lives. This guide gives an insight into some of the solutions and ideas that can be taken forward in schools and wider society to build a more confident and resilient nation when it comes to maths. Together, we must continue the conversation and fight for the wonder of maths."

Cipora et al state that: It was already known in the 1970's that intelligence accounts for only 50% of the variance in maths performance (see Suinn and Edwards, 1982). Maths anxiety is considered to be one important factor contributing to individual maths achievement. Our research will look at how we can combat maths anxiety in learners in an attempt to level the playing field and ensure everyone has a chance to succeed.

Method

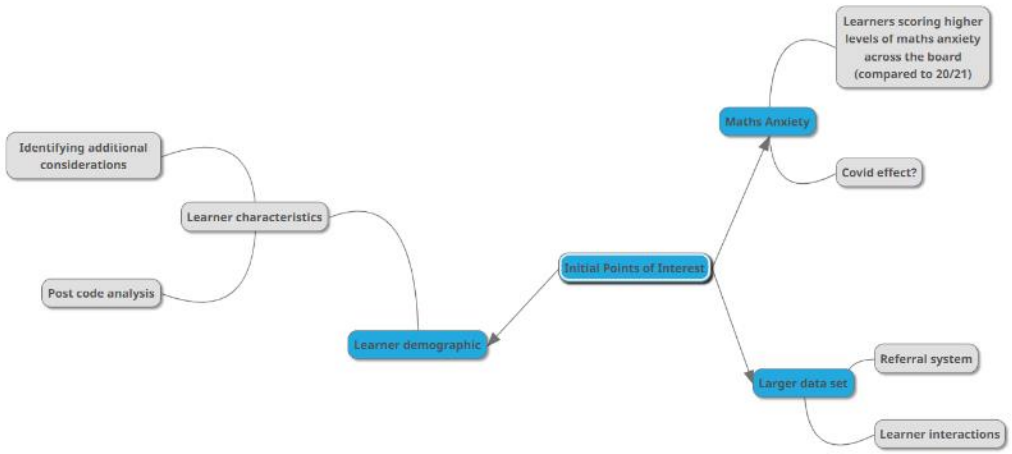


Fig 1

Over our 3 years of action research, as an ARG we have devised a 6 session coaching programme. The sessions encompass a holistic approach, with half of each session focused on activities to build confidence, memory skills, resilience and aspirations, and half of each session focussed on the individual students' diagnosed gaps in maths knowledge.

To develop our action research for 21/22, we met as an ARG to review all feedback and data from 20/21, and develop a "what worked well, even better if" framework (Fig.1). We wanted to begin to explore more how learner characteristics can factor into a learner's openness to and experience of coaching.

Coaching is described by Whitemore as being able to unlock a person's potential to achieve maximum results rather than teaching them. Through learner feedback and reflecting on our research so far we know that the majority of our learners prefer a one to one coaching or a small group approach, and through this additional intervention have subsequently found that they enjoy their main maths lessons more. Our research so far has shown positive indications on the effect of coaching to enable learners to develop and change their mindset, so we have continued to develop this for 21/22.

Our coaching project is based mainly on a self-referral model, with the allowance of the maths lecturers suggesting coaching to students who require additional support and signposting from wider teams. Students that are wishing to access support complete an initial survey, letting us know a bit more about them so that we match them with the right maths coach, setting and resources for them. Students that opted into the coaching process completed our initial assessment to identify their areas of strength and weaknesses to help with them taking some ownership of their own learning (fig.2). At the initial assessment/ first coaching session everything is

explained to the learner which helps build that working relationship and break the ice of meeting someone new as well as allowing the learner to indicate the maths areas they would like to focus on. Long term goals are discussed to make maths more relatable in the learners journey and introduce the GROW approach defining their goal, current reality, potential obstacles and how they will move forward to achieve their goal.

My Maths Self-Assessment…….

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 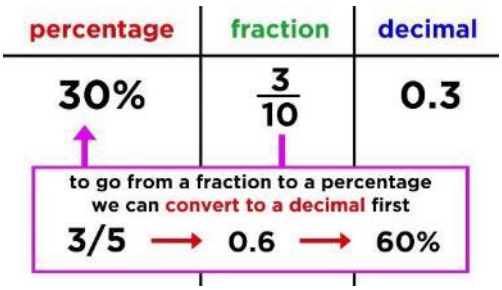

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 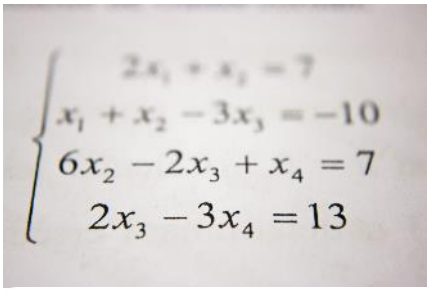

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 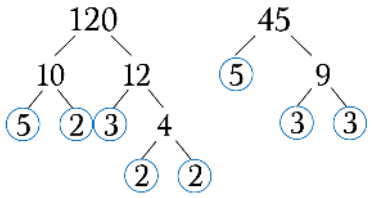

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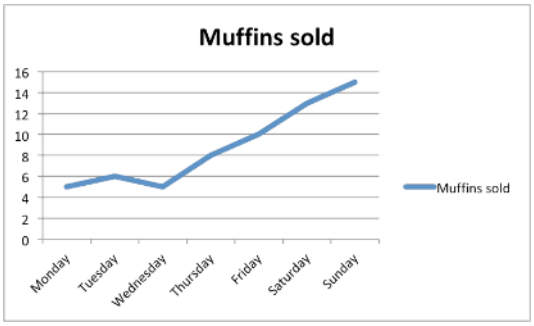
<td>RELATIONS AND GRAPHS
 

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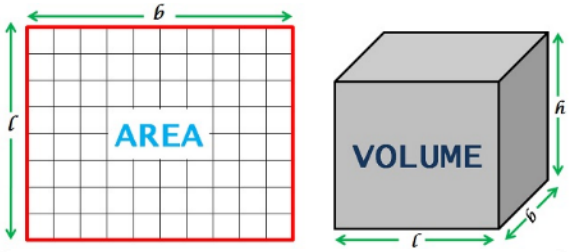
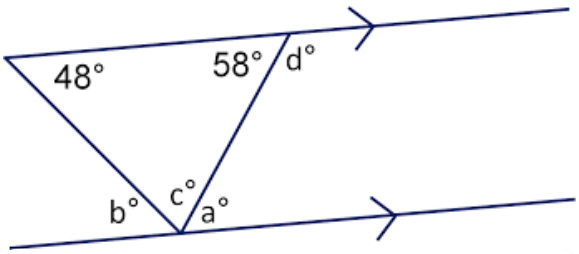
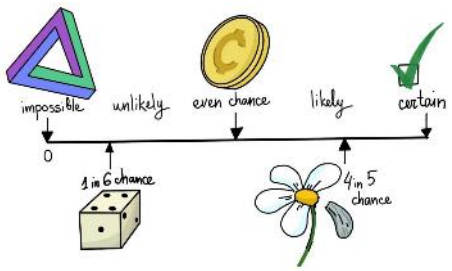
SHAPES AND MEASUREMENTS



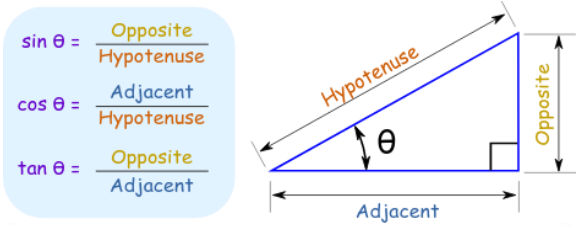
ANGLE GEOMETRY



PROBABILITY

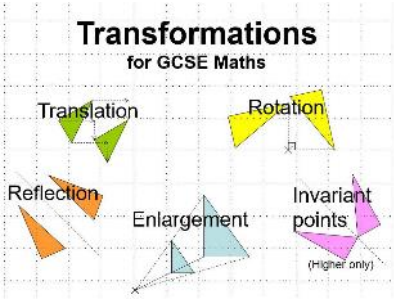


GEOMETRY AND TRIGONOMETRY



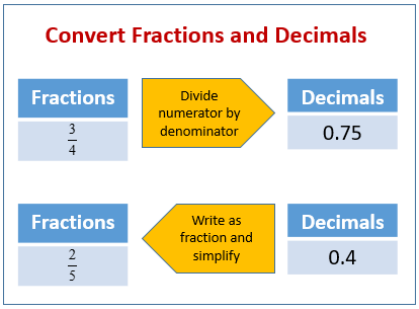
DATA ANALYSIS, GRAPHS AND AVERAGES

TRANSFORMATIONS



RATIO AND PROPORTION

FRACTIONS AND DECIMALS



Top 5 focus sessions for coaching

Session	Focus
2	
3	
4	
5	
6	

Fig. 2

Covid has continued to impact our learners, lecturers and network partners this year. We have seen larger gaps in knowledge but more noticeable has been the anxieties around maths and general social behaviours and anxieties. We started to notice this during 20/21, so from this we have incorporated more time for each session to allow for further discussion and support, and to ensure the mindfulness/confidence boosting activities are completed. The sessions have increased from 30 minutes to 45 minutes. With the return to site for the full year, we also encouraged our learners to attend their coaching sessions face to face rather than online to help them build confidence with that social interaction and setting. To ensure accessibility we offered the option of an online session if the learner needed this to overcome barriers to learning.

The strands of our coaching action research developed over the last three years but continued to keep the same core aspects.

Our strands are:

- Staff training in coaching methodology, GROW model and useful techniques to promote a growth mindset - To develop further on these points we have offered our existing staff CPD to develop their understanding of methodology and the growth mindset and also given them the opportunity to part take in further maths qualifications. We have continued to attend CfEM conferences and training.
- The creation of resources to be used alongside the maths focused side of the sessions to look at goal settings, confidence and motivation - We have looked at the learners overall goals and used this to tailor sessions to ensure the maths is more relatable and why it is important in their vocational area.
- The creation of GCSE and Functional Skills self-assessment for students to highlight their perceived weaknesses so that the coach could develop activities around these topics based on their maths expertise - Discussed in detail with each learner their strengths and weaknesses and how we can use

their strengths to overcome their so-called weaknesses and how their strengths link between different mathematical subjects.

- Implementation of making maths visible across the whole college curriculum - Continue our development of making maths more visible across the whole college by holding meetings, CPD and going into the faculties to see where we can implement maths more often and contextualise to vocational areas.

We have continued to gather feedback after each session from the coach and the learner to ensure we are continuing on the correct pathway and to provide the coaching team with qualitative and quantitative feedback.

Our coaching objectives have also stayed consistent over the past 3 years with small adaptations and developments. Our research objectives for 21/22;

1. To understand current mathematics practice in diagnosing student gaps in knowledge, and developing a process to fully assess learners starting point with maths and level of confidence/self-efficacy.

2. To develop an effective end-to-end process for teachers to capture gaps in knowledge and apply them to maths learning.

3. To design and deliver a range of coaching sessions on a 1 to 1 and/or small group basis, and analyse their effectiveness with regard to learner motivation and engagement, measured through regular student, tutor and coach feedback.

4. To investigate whether there are differences in engagement by learner characteristics (Age, Gender, SEN, previous attainment, vocation)

5. To analyse the progress made by those students who have had access to maths coaching.

6. To assess and explain ways in which growth mindset and interest-based activities can support maths mastery.

7. To share results and, if possible effective approaches, with GCSE maths re-sit teachers locally and nationally.

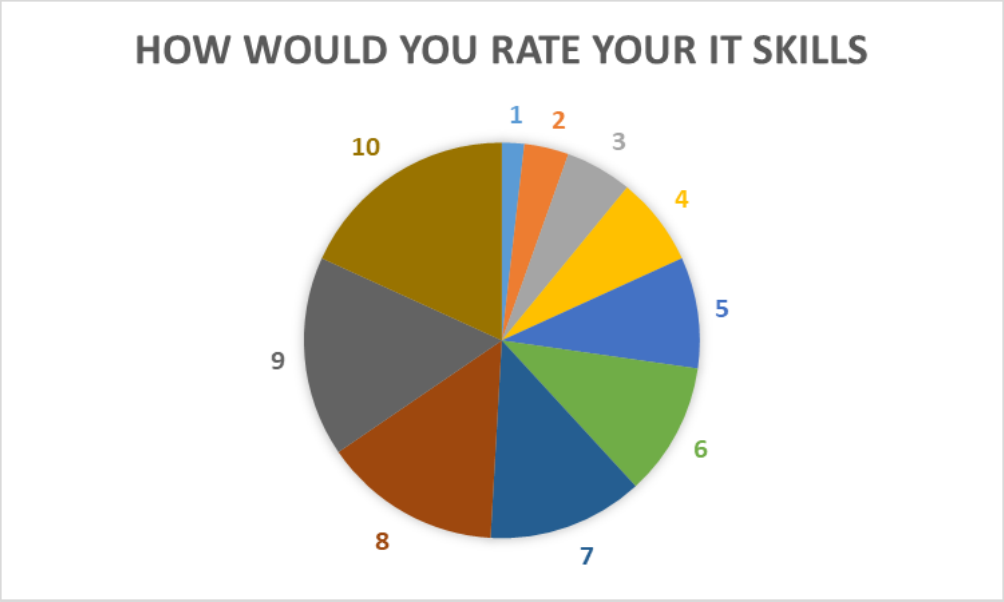
Results and Discussion

In 21/22, 70 students took part in the coaching action research project from City College Plymouth and Piquet Barracks. Unfortunately, due to ongoing covid challenges and staffing changes, Exeter College had to drop out of the research project in January but are hoping to re-join for 22/23.

Our initial self-referral survey included Likert scales to allow students to indicate their level of maths anxiety. On average, our results show that learners started with a maths anxiety score of 4 (scale 1 very anxious to 10 completely comfortable).

The survey was designed to help us break this down further using maths anxiety scenarios and allowing learners to indicate how this would make them feel. An area that solicited high indications of maths anxiety was “Being asked to explain a maths formula in class”, with the average score being 3.6 (scale 1 very anxious to 10 completely comfortable). Another low scoring area was “Being given a surprise maths quiz in lesson” which on average was 4.4 (scale 1 very anxious to 10 completely comfortable).

Due to the covid situation of the past 2 years, we also asked learners to rate their IT/digital skills and confidence, which informed us and allowed us to devise contingency plans for learners if there was a further lockdown. Students rated their confidence with using IT at 6.7 out of 10, which is an implication of the necessity of building their skills over the pandemic.

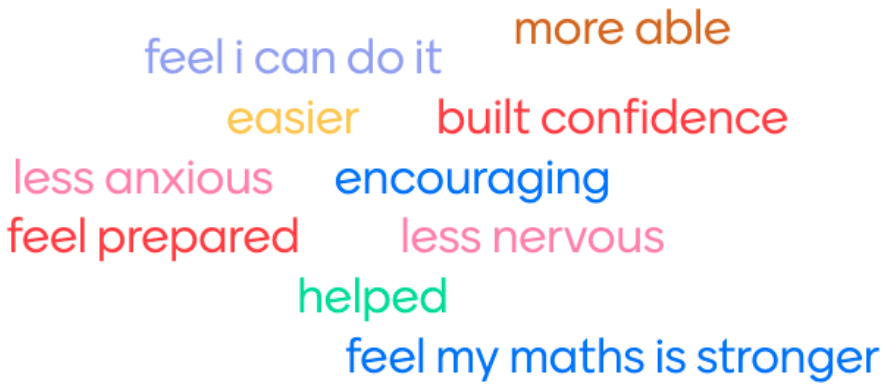


A key aim of our research was to ascertain whether our intervention of one to one coaching would have a direct impact on students' perceived confidence around maths and maths anxiety level. From the data we were able to collect, students' responses showed a confidence increase on average from 4 out of 10 from the initial survey to 8 out of 10 by session six, so on average a 100% increase in maths confidence/reduction in maths anxiety.

Key themes that students highlighted from their reflections of the coaching sessions were:

- Increased confidence, reduction in maths anxiety
- Increased ownership and resilience in regards to their maths learning and more proactive with asynchronous maths learning
- Increased knowledge and improved outcomes

A selection of learner comments;



"My coach was incredible and patient!! I didn't feel embarrassed asking silly questions which I would normally it really really helped everyone was so positive too which made me confident"

"Like being able to ask questions when I don't understand"

"No longer terrified of maths. I can now answers questions in class - I use to hate it and want to leave"

"Realising I can answer questions I did not know 3 months ago."

"Bringing things back to the surface. I had forgotten how to do things."

An important aspect of our research is also to monitor the impact on the coaching team. With 6 coaches this year, we completed an end of project questionnaire. When asked on a scale of 1 - 10 (1 being not at all and 10 definitely) how beneficial, to students, do you think it will be to run the coaching sessions again in the academic 22/23 the average came out at 9.75, which strongly supports our decision to continue our research further. When asked on a scale of 1 - 10 (1 being not at all and 10 strongly agree) what are your thoughts on this statement. 'Being part of the coaching project and CPD has developed and informed my teaching practice providing new approaches to try in my everyday teaching.' the average was 9.5 out of 10.

Key themes highlighted by the coaching team were:

- Importance of one-to-one support - learners and coaches feel more relaxed and open.

- Maths anxiety - this was even more prevalent this year, and coaches commented that learners were quick to self-criticise and found it difficult to recognise their strengths, reiterating the importance of the holistic, confidence boosting element of the sessions. Anxiety across the board was higher, with indication that this has been due to covid and social isolation.
- A return to face to face has been beneficial for learners and coaches.
- Reignited passion - opportunity to support learners and see results quickly, rewarding and enjoyable to experience a different role and approach as coach.

Discussion

In 21/22, we decided to some small adaptations to our coaching programme, as the results from 20/21 gave positive suggestions. The main factor highlighted from last year was that the half an hour sessions were not long enough, so this year we extended them to 45min -1 hour sessions, which has proven to be more successful and the coaches feel that they have had enough time to complete the soft skills and maths coaching, as well as more discussion time.

Our coaching sessions focus remains to improve learners' engagement and confidence around mathematics. Session 1 has proven very successful as a tool in helping us to start to achieve this aim, by building the initial relationship between learner and coach (see appendix for all session plans/resources). Learners anxieties and experiences with studying maths can be discussed and a collaborative plan be made for their following 5 sessions. Coaches explain the processes around the one to one coaching and have the chance to challenge their beliefs with a completely different approach to what the learner may have experienced in the past.

Session 1 is also really important in identifying the why – why do learners want to achieve and what is their goal, therefore introducing some GROW targets, and encouraging focus and ownership. Research from TES (2010) supports this and states “we need to find solutions to maths anxiety that starts in the classroom and focuses on giving children a positive experience of maths from the outset. By doing this the learner would take more responsibility and ownership of their own learning.” The research shows that students who are encouraged to take ownership for their own learning are better able to identify and work toward learning goals; are more likely to believe that it is within their control to succeed in school; and demonstrate life skills such as initiative, self-direction and productivity.

For our confidence boosting/holistic activities, we updated session 3 to a “Make your perfect sandwich!” challenge. By explaining how to make their favourite sandwich to their coach in every detail and instruction, eg put ham in bread. Ok what bread? Is it sliced? Do you need to slice it? What ham? How much ham? We are helping learners to think through a problem, and identify relevant and important information – similar to the process when interpreting a wordy maths question. This also helps with their communication soft skills.

We have found that the use of humour can also help break down the barriers of participation which links to Dormann and Biddle (2006) who state that humour can have a positive effect on motivation in the learning process as it can provide students with creative thinking skills while performing learning activities. Through activities such as what’s in the box, make your perfect sandwich, brain yoga and you are awesome in our coaching programme, these elements are naturally added to the session.

The feedback on the confidence boosting/holistic activities were that these are beneficial to build confidence, relationship/affective domain, memory skills and maths revision techniques. Coaches’ feedback that in some sessions if a learner was really focussed on the maths section of the session that the motivational activity

would be cut short slightly, but this highlights the benefit of flexible sessions to fit each individual learner.

The activities are designed to start conversations, get students thinking outside the box and improve memory, focus, or daily functionality. This combined with the maths focus highlighted by the students creates a positive learning coaching environment. The sessions, as highlighted by our findings, motivate and engage learners and coaches in line with our research objectives. By collecting learner and coach reflections after each coaching session, we are able to assess the success of each individual session.

In 22/23, we will continue to pair each learner with a coach they are not taught by, giving them the opportunity to experience different approaches and feel different to their main maths sessions.

In 21/22, we started our work exploring learner characteristics and found that with our coaching cohort this year the ratio of female to male students was 4:1. We will investigate this further in 21/22 and look at ways that we can adapt the referral process and activities we do to encourage more male students to take part in the research. The ratio is reflective of the 21/22 GCSE cohort which has a higher number of female students. We also in collaboration with our College tuition fund team, analysed learner postcodes and found that 60% of our coaching students live in areas of deprivation in the City. As we develop our research for 22/23, we will gather this data in September, and also explore further learner characteristics.

Over the last year our research has continued to back up the research of Haynes, Mullins and Stein (2004) who discovered in their research that it isn't just the mathematical content being taught that instigates anxiety and apprehension but possibly the classroom environment and the manner of teaching the subject. Our learners have continued to prefer the one to one support and the more relaxed environment and approach. This also made us think of Maslow's Hierarchy (1973) of needs he states learners need their basic needs to be met in order for learning to take place and in order to achieve a growth mindset the learner has to have self-actualization and the desire to become the best they can. Which is exactly what all our coaches aim to achieve with our learners.

Early indications from GCSE mock exams and Functional Skills assessments suggest a positive effect of the coaching project on student attainment.

Conclusions and Recommendations

This paper has discussed the benefits of our coaching action research for students and staff at City College Plymouth and our network. The overriding aim of our research was to have a positive impact on students' anxiety around their maths learning. The evidence gathered strongly suggests that one to one coaching can and does have a positive impact on students' maths confidence, ability and resilience. The research also shows a positive impact on teaching staff as well showing the importance of coaching as a holistic approach for the whole college, transferable to other vocational areas and skillsets.

We have found that the extension from 30-minute sessions to 45mins - 1-hour sessions has been ensured thorough work with our learners and coaches, and allowed for time to complete build soft skills, confidence and the mathematical skills. We will continue with this 6-session timeframe for our work in the final year of the national CfEM project.

A key objective that we will explore further in 22/23 is learner characteristics and the impact this has on the success of completing the coaching programme. This year we looked at the gender breakdown and postcode areas of deprivation, but we will further this by considering aspects such as additional needs. We will strive to increase the data set, and broaden the research within our network partner sites.

We have so far found in the 3 years of the coaching project that it is having a positive effect on staff and students, as well as the college culture as a whole.

CPD is an important factor and we will continue to develop this, as well as ensuring the coaching team have the adequate remission and time to learn and digest. The 6 national Mastery PD modules will greatly support our ARG and network, combining well with our research objectives and aims. We will develop our coaching teams to include wider College staff, as we have found the breadth of experience and knowledge that can be brought to the research is invaluable, and will continue to encourage a whole college approach with contextualisation of maths within all vocational areas.

For the FE sector, it is key that we engage and enable students to discuss, understand and tackle their maths anxiety, and coaching is positively developing this process, to enable our 16+ students to excel and move into their chosen fields. Through our research we will Develop further ways to break down the barriers of maths and make the importance of maths relatable to students in academic year 22/23.

Entering into the final year of the CfEM project, legacy will be a key focus and we have worked this year to ensure coaching time is allocated within staff timetables therefore creating a sustainable model for March 23 and beyond. This model will then be transferable to all FE sites, and through our research findings we will show how and why this is justifiable on a financial basis through sustained improvements for post 16 level 2 maths resit students.

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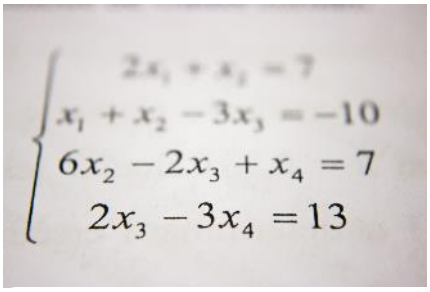
Appendix

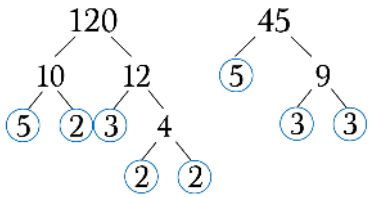
Appendix 1 - My Maths Self-Assessment (GCSE)……

PERCENTAGES

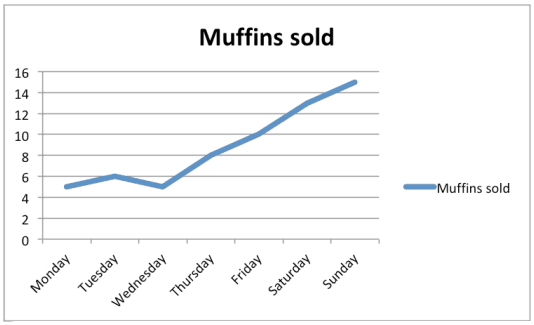
ALGEBRA



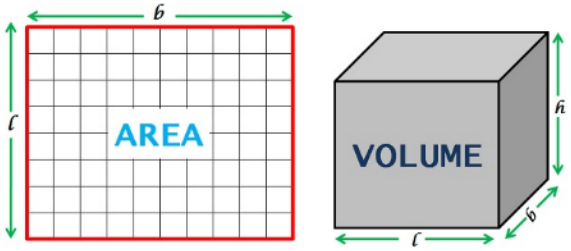
WORKING WITH NUMBERS



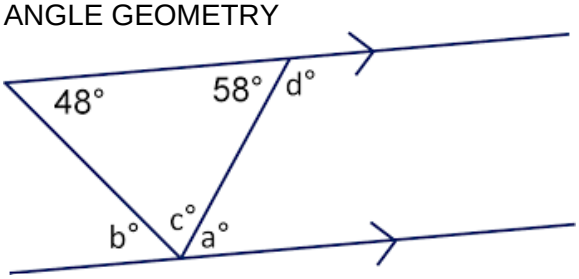
RELATIONS AND GRAPHS



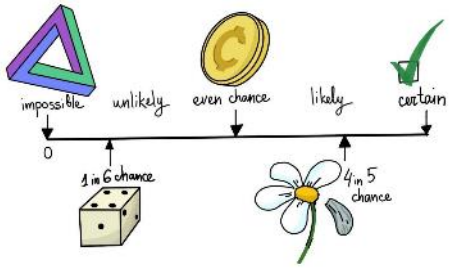
SHAPES AND MEASUREMENTS



ANGLE GEOMETRY



PROBABILITY

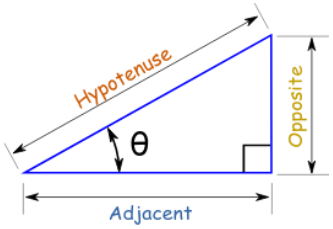


GEOMETRY AND TRIGONOMETRY

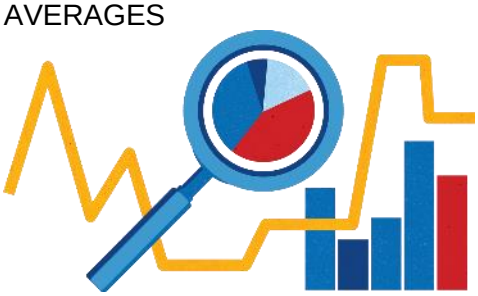
$\sin\theta = \frac{\text{Opposite}}{\text{Hypotenuse}}$

$\cos\theta = \frac{\text{Adjacent}}{\text{Hypotenuse}}$

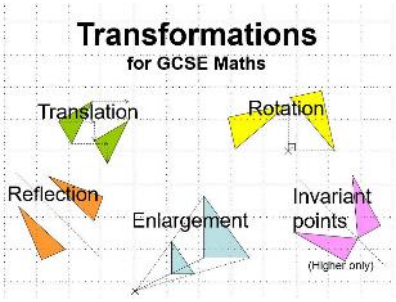
$\tan\theta = \frac{\text{Opposite}}{\text{Adjacent}}$



DATA ANALYSIS, GRAPHS AND AVERAGES

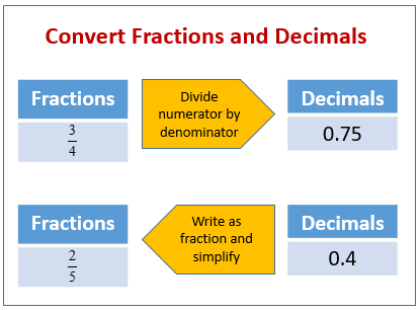


TRANSFORMATIONS



RATIO AND PROPORTION

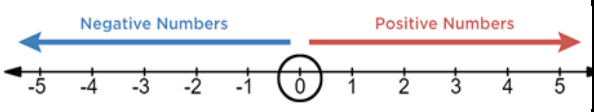
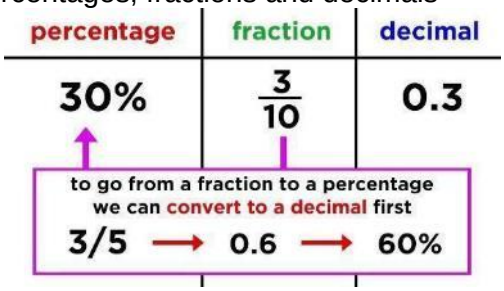
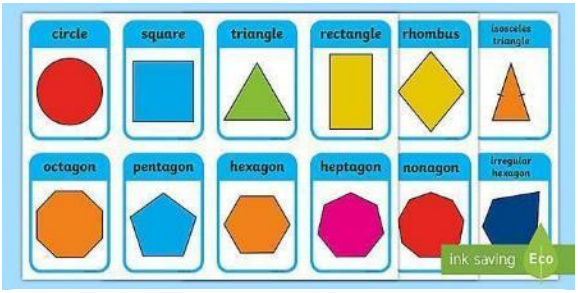
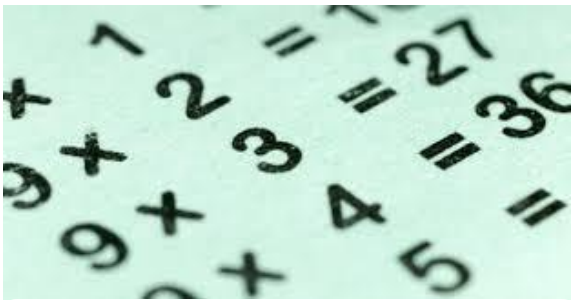
FRACTIONS AND DECIMALS



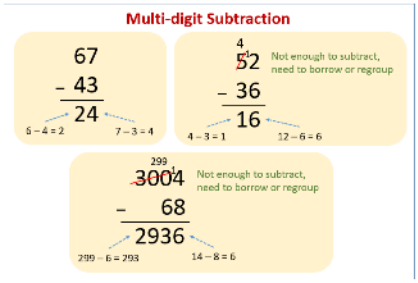
Top 5 focus sessions for coaching

Session	Focus
2	
3	
4	
5	
6	

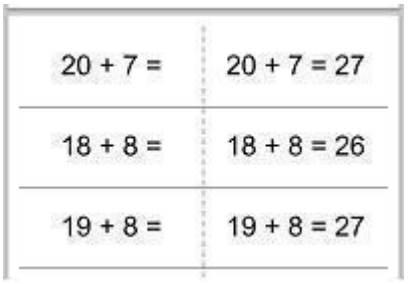
My Maths Self-Assessment (Functional Skills) ……

Positive and Negative numbers  	Percentages, fractions and decimals  
Calculating Money  	2D Shapes  
Multiplication  	Division 100 ÷ 10 = 24 ÷ 3 = 14 ÷ 2 = 80 ÷ 8 = 55 ÷ 5 = 

Subtraction

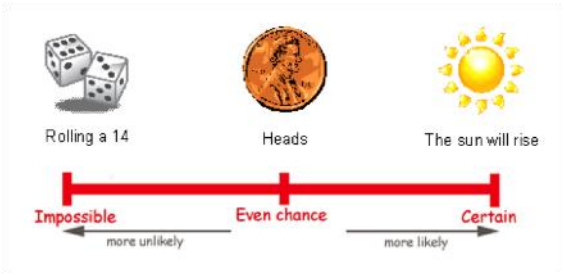


Addition

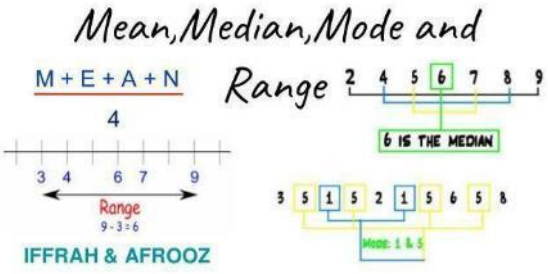


3D shapes, Area and Volume

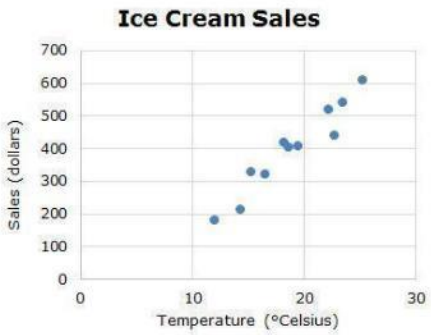
Probability



Mean, Median, Mode and Range



Graphs and data



Top 5 focus sessions for coaching

Session	Focus
2	
3	
4	
5	
6	

Appendix 2 - Student learner journal

Maths Centre for Excellence
Coaching Sessions

Introduction

Put simply, coaching is a process that aims to improve performance and focuses on the 'here and now' rather than on the distant past or future.

In coaching, fundamentally, the coach is helping the individual to improve their own performance: in other words, helping them to learn.

Will I get anything from it?

Not only will you be helping someone else develop their skills but you'll get a lot from it, too. Coaching can support you with creating new skills and allow you the opportunity to develop your existing skills.

Getting in touch

We're always here if you've got a question or if you want to tell us what you've been up to. You can get hold of us by ringing 01752 305040 or if it's easier, email mathscoe@cityplym.ac.uk

And last, but not least, we hope you enjoy your coaching experience.

Best wishes,

The maths centre for excellence team

What to expect

Session 1 - Getting to know you

Session 2 - Memory skills and brain yoga

Session 3 - Critical thinking

Session 4 - You are Awesome

Session 5 - Maths, Me and My future

Session 6 - Coffee, cake and catch up

Sites we like and useful links

Who are we

There's a lot to think about before you start your journey with us at City College Plymouth and a lot to take in when you're on your way. A good support network can make all the difference.

The entire College team is here to support, advise and guide you. Whatever stage of student life you're at, our goal is to give you all the information you need to make the choices that are right for you

The Centres for Excellence in Maths is a national programme funded by the Department for Education (DfE) and managed on its behalf by the Education and Training Foundation (ETF) with a range of delivery partners, including the Association of Colleges. It aims to deliver a step change in maths teaching up to Level 2 in post-16 settings to help increase the number of young people leaving compulsory education with basic maths skills, up to GCSE and equivalent level.

City College Plymouth is one of just 21 National Centres for Excellence in Maths. Each Centre for Excellence is led by an exceptional Post-16 institution with the commitment, capacity and leadership skills required to drive innovation and improvement in their institution and beyond.

What to expect

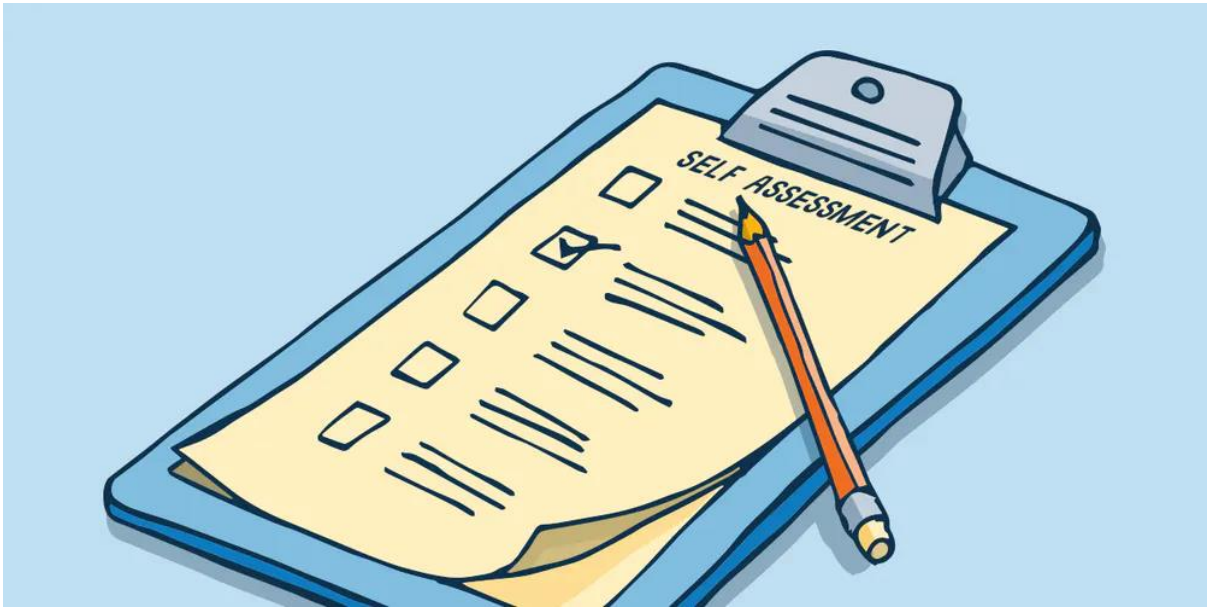
You will meet up with your 'coach' once a month for 6 months for half an hour. During these sessions you will have the opportunity to look at some math in a bit more detail, complete some activities and have a chance to reflect on your own learning and talk through any issues or concerns you may have.

You will be provided with prompts to help you with this but there will be a focus on you to think critically about your future.

The sessions will help you set personal goals and support you to achieve them, taking into account where you are now, looking at all your options and plotting a way forward.

Session 1

Use this page to make notes that you may find helpful



Getting to know you and goal setting.

This session will be a good opportunity to get to know your coach and find out a bit more about the next 6 sessions.

Complete this quick questionnaire which will pair you with an animal that will give you an insight into your learning style and suggest some strengths and weaknesses: https://icould.com/buzz-quiz/ Once completed and you've had a chat with your coach set yourself a goal.

Name:

My Goal is:

Steps to reaching my goal (at least 2)

1.
2.
3.
4.

Two things that will help me reach my goal:

1.
2.

I will know I have reached my goal because:

Reflection 1

Date: **Session No.**:

Activity used and/or topics discussed:
Outcome of the session - What have I learned or got out of the session
On a scale of 1 - 10 (1 being not at all and 10 being super confident) how confident are feeling about your maths qualification
What did you find good about this session?
What will you do in the coming weeks to help achieve your goal

What is the date and venue of the next meeting?

Session 2

Maths focus and notes page

Memory skills and brain Yoga.

This session will give you a couple of activities that will help with your memory skills and provide an opportunity to reflect on what has happened since your last meeting.

What's in the box?

You will be shown a box with 20 items in. You will have 20 seconds to look in the box and then you will be asked to right down as many as you can remember. Don't worry about how many you get. But if you practice this, you'll start to see progress in your memory retention

What's in the box?

Brain Yoga

Take your left hand, make a fist, and extend your thumb; holding this, do the same with your right, only extend your little pinky. Now change them so it's left pinky and right thumb. The coordination involved will strengthen neural connections, which will help develop the memory!

For more memory activities check out our useful sites sections at the end of this booklet.

Reflection 2

Date: **Session No.**:

Activity used and/or topics discussed:
Outcome of the session - What have I learned or got out of the session
On a scale of 1 - 10 (1 being not at all and 10 being super confident) how confident are feeling about your maths qualification
What did you find good about this session?

What will you do in the coming weeks to help achieve your goal
What is the date and venue of the next meeting?

Session 3

Maths focus and notes page ….

Critical thinking.

Critical thinking is clear, rational, logical, and independent thinking. It's about improving thinking by analysing, assessing, and reconstructing how we think. You can apply critical thinking to any kind of subject, problem, or situation you choose.

Make your perfect sandwich!

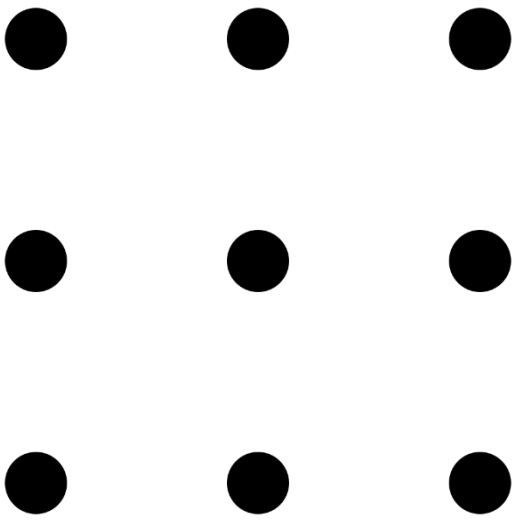
Your challenge is to explain to your coach how to make your favourite sandwich. The challenge here is to think about what you would do with each instruction: Eg put ham in bread. Ok what bread? Is it sliced? Do you need to slice it? What ham? How much ham?

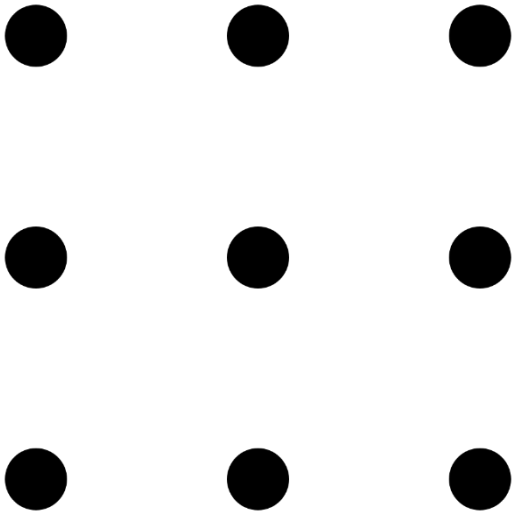
This will help you think through a problem, which may help you with some of the wordy questions in a maths exam. This will focus your mind on what is the important information

Joining up the dots!

On the next page you'll find 9 dots. Can you join them all up with either 3 or 4 lines without removing your pen from the paper?

(Hint: Think beyond real and imaginary boundaries with this puzzle, think outside of the box)





Reflection 3

Date: **Session No.**:

Activity used and/or topics discussed:
Outcome of the session - What have I learned or got out of the session
On a scale of 1 - 10 (1 being not at all and 10 being super confident) how confident are feeling about your maths qualification
What did you find good about this session?
What will you do in the coming weeks to help achieve your goal

What is the date and venue of the next meeting?

Session 4

Maths focus and notes page

You are awesome.

This session is all about you and focussing on positives about yourself.

Elevator pitch

This is an exercise used in business to help you think fast and get your point across. It's all about choosing and using words carefully and persuasively to achieve your goals in any conversation. Today's aim is to sell yourself with a 30-60 second pitch. Make some notes about what you want to say; some ideas and note space are provided below. (It can be tough saying nice things about ourselves but this is the perfect opportunity for some humble bragging)

I'm amazing and fantastic because?

Reflection 4

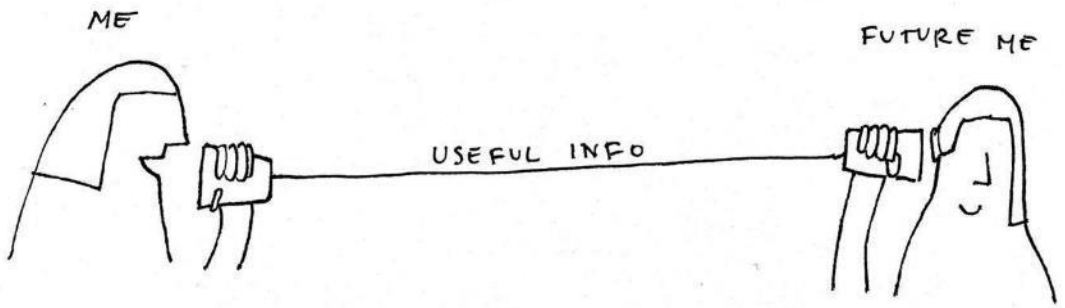
Date: **Session No.**:

Activity used and/or topics discussed:
Outcome of the session - What have I learned or got out of the session
On a scale of 1 - 10 (1 being not at all and 10 being super confident) how confident are feeling about your maths qualification
What did you find good about this session?

What will you do in the coming weeks to help achieve your goal
What is the date and venue of the next meeting?

Session 5

Maths focus and notes page….



Maths, me and my future

This session we will be exploring what job you want to do in the future and thinking about what math skills you'll be using in that role.

The job I want is:

What maths skills do I think will be used in that role, eg time management, I'll need to know what time to turn up and how long my shift is.

Reflection 5

Date: **Session No.**:

Activity used and/or topics discussed:
Outcome of the session - What have I learned or got out of the session
On a scale of 1 - 10 (1 being not at all and 10 being super confident) how confident are feeling about your maths qualification
What did you find good about this session?

What will you do in the coming weeks to help achieve your goal
What is the date and venue of the next meeting?

Session 6

Maths focus and notes page….

Coffee cake and catch up.

This session will look back at your goals and reflect on the past 6 months and an opportunity to discuss anything that has concerned you or you want to go over in a bit more detail.

Don’t forget you’ll still need to complete your own reflections too.

Reflection 6

Date: **Session No.**:

Activity used and/or topics discussed:
Outcome of the session - What have I learned or got out of the session
On a scale of 1 - 10 (1 being not at all and 10 being super confident) how confident are feeling about your maths qualification
What did you find good about this session?

What will you do in the coming weeks to help achieve your goal
What is the date and venue of the next meeting?

Sites we like and useful links

- https://sites.google.com/cityplym.ac.uk/mathscentreforexcellence/home
- https://studentcentral.cityplym.ac.uk/
- https://www.youtube.com/user/paulmcgeethesumoguy
- https://vle.mathswatch.co.uk/vle/
- https://www.mathsbox.org.uk/index1.php
- https://blogs.cardiff.ac.uk/studentlifecu/tips-on-coping-with-anxiety-before-and-during-exams-2/
- https://www.mathsgenie.co.uk/gcse.html
- https://mathsbot.com/
- https://www.maths4everyone.com/
- https://www.missbsresources.com/maths-resources
- https://allaboutmaths.aqa.org.uk/newspec8300
- https://padlet.com/tessmaths1/knowledgeorganisers
- https://padlet.com/tessmaths1/AOCtaster
- https://padlet.com/tessmaths1/hooks

- https://padlet.com/tessmaths1/worldofrevision
- https://www.onmaths.com/
- https://www.maths4all.org/
- https://www.healthline.com/health/mental-health/brain-exercises
- https://www.everydayhealth.com/longevity/mental-fitness/brain-exercises-for-memory.aspx