

CHOOSE MATHS = MENTORING

AN AMSI SCHOOLS PROJECT

DELIVERED BY



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BHP Foundation

MENTORING THEMES 2019

These themes are intended to be a scaffold, or guide, for the mentoring program. Each mentoring circle will find their own path and conversations. The themes here do not need to be followed in this particular order, or even at all if there are different conversations you wish to have!

Mentors and mentees will receive short questionnaires in Weeks 3 and 6 to monitor the progress of the program, and a longer feedback form at the end of Week 10.

1. Introductions

Mentors and mentees introduce themselves. Mentors to give an overview of their stories – what are they doing now, what was the path to getting there, why are they choosing to mentor? Mentees talk about why they have joined the program, where they're at in their lives, favourite subjects, hobbies, sports. Mention the personal development form. [Allow time for a quick primer on Zoom at the beginning and discussion of the code of conduct and expectations.]

Weekly task: Mentees (and mentors?!) to fill out the personal development form (find it at <https://choosemaths.org.au/mentoring-documents/>). In particular, think of some goals they want to achieve this year and how mentoring can help them.

2. Goal setting

Review the personal development forms: what things do students think they are good at, what do they want to improve at, and what specific goals have they set for this year? Mentors share their own stories of their goals, and how these may have changed over time. Success stories, and “unsuccess” stories. What might hold people back from achieving their goals? How can mentors and mentees work together to best support each other?

Weekly task: Write down something you feel might hold you back from achieving your goals, and respond to each other to help think of ways around those worries.

3. Attitudes towards maths

What feelings do the mentors and mentees have towards maths? Is it interesting, boring, challenging, scary, beautiful, nerdy,...? Stories from mentors about how their own attitudes to maths may have changed since school, and why. Discuss stereotypes around maths, and the role models we have. What are qualities that help famous mathematicians succeed? Do you need to be a genius to do maths? Bring up the power of ‘yet’: I can't do

quadratic equations...yet. Growth mindset: the brain does not have a fixed ability but grows with every learning experience, especially mistakes! Successful people are the ones who don't give up.

Weekly task: Research a famous female mathematician and write down three highlights of her life. Or think of three mathematical or scientific role models that inspire you.

4. Building confidence (in maths)

Have the mentors always felt confident in maths, or in life more generally? If not, how did they build their confidence? Discussion of imposter syndrome – not uncommon, especially among women! Don't be afraid to ask questions or seem imperfect. Get help when you need it, work to your strengths, and keep practising at the things you want to get better at.

Weekly task: Make an active effort over the week to ask more questions about things you don't understand, to friends or to teachers in class. How does this make you feel?

5. Study skills, problem solving

Studying is very important at school, and it's a skill we can improve at! Brainstorm ways that the group studies – how, where, when? Some people may like quiet while others like music; some people study better in the mornings and others in the evenings; some like to be alone and others in groups. What are the difficult things in studying? (Distractions, procrastination, too busy, finding work difficult,...) What are some solutions to these problems? What resources do the mentees have when they are stuck on a problem, and how can the mentors add to this list? What do the mentors do when they are stuck on something, especially a maths problem?

Weekly task: Write down the things you do (or could do!) when you are stuck on a maths problem.

6. Careers and pathways

What jobs are the mentees potentially interested in? How might maths be involved in these careers? What other strengths or skills might those careers involve? (E.g. problem solving, people skills, independent working, physical strength, travel.) Relate back to the strengths that students self-identified with in Week 1. What steps will be required to get into each of those jobs, and how can you find out if you don't know?

Mentors to tell stories of their own career paths and the way they use maths in their job or studies.

Weekly task: Write down two jobs you might like to do one day, and why? What skills will they need?

7. Everyday maths

Where is maths in our everyday lives? What hobbies do everyone do, and where is the maths in each of these? What other examples might there be in how we use maths, e.g. budgeting, ratios, calculating sale prices in shops, stats in the news, saving money, optimising a process. Examples of maths in the movies or on social media. Is it possible to be creative and be mathematical at the same time?

Weekly task: Find an example of maths or stats in the news or media. Discuss!

8. Aspects of maths

What is maths? Discussion of how maths is more than just numbers, calculations or formulae. What aspects of maths do each of the mentors enjoy, and why? Maths is such a broad subject that, chances are, there will be a part of it that appeals to everyone. At the same time, it is ok not to enjoy every aspect of it!

Weekly task: Write down one or two aspects of maths you enjoy. What is it about them that appeals to you? Where might that kind of maths be useful outside school?

9. Future maths options

If students are in Y9/10, what subjects are they thinking of choosing in Year 11 (including the level of maths)? What worries do students have around subject selections, and how might their choices impact the next steps after school? Discussions around ATAR, choosing university courses, mathematics bridging courses, and also other pathways such as TAFE, defence, apprenticeships. Understanding that pathways can change over a life – the choices you make now do not mean a lifetime commitment. What pathway did the mentors take and what did they learn from their experiences?

Weekly task: Mentees to write down the level of maths they are thinking of doing in Y11, and one advantage and one disadvantage to choosing that over a different level.

10. Review of goals and achievements

Finish the last session by referring back to the goals set in Week 1. Have any of the goals been reached or approached? Was the mentoring useful in helping them with their goals? What could have been done better? If someone didn't achieve their goal, is this a sign of failure, or a sign of growth – identifying something that needs to change and working towards it?

[Allow time for formal evaluation of the program.]

Weekly task: Review the goals from Week 1. Describe progress made towards these, and three new goals for the future.
