THE MATHEMATICAL ASSOCIATION OF VICTORIA

Maths Talent Quest 2011

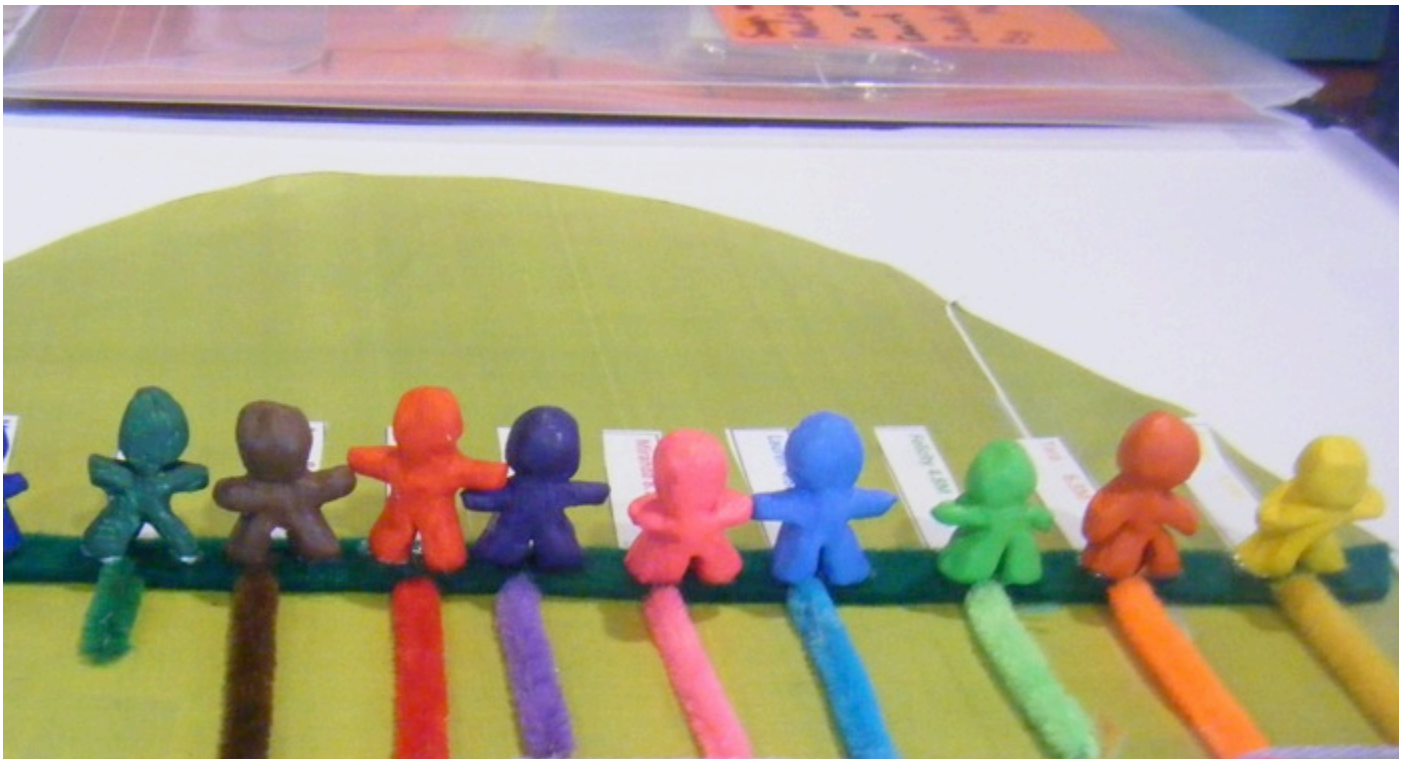
Information for students, teachers and parents

What is the Maths Talent Quest?

The Maths Talent Quest (MTQ) was first held in 1982. It is organised by the Student Activities Committee of The Mathematical Association of Victoria (MAV) and is open to all primary and secondary students in Victoria. The MTQ aims to promote interest in mathematics and foster positive attitudes amongst students, teachers and parents. The focus is on the process of mathematical investigations.

Looking at real life situations and finding that mathematics is everywhere, captures the imagination of both teachers and students alike. The Maths Talent Quest allows students to investigate mathematics on an individual/group/class basis with the chance to have fun, see mathematics in real life situations and receive some recognition in the process.

All entrants will receive a certificate. Book vouchers will be awarded to the High Distinction and Distinction winners for each year level at an Awards Ceremony which will be held on 27 October 2011. The entries that receive a High Distinction at state level are judged separately and the top entries are then forwarded for Judging in the National Maths Talent Quest. National Award Winners will be presented with their prizes at the Victorian Awards Ceremony.



Why participate in the MTQ?

The MTQ:

- promotes an interest in, and increases awareness of mathematics
- facilitates the integration of learning outcomes across the mathematics strands and across other curriculum areas within relevant contexts
- develops student research and communication skills
- encourages students to verify and justify the results of an investigation
- equips students with problem solving strategies
- provides students with the opportunity to discover the practical applications of mathematics
- supports independent and collaborative learning
- creates avenues for extension for the more able student
- allows all students to achieve some measure of success
- caters for mixed ability teaching and a variety of learning styles and preferences.

For Victorian students, many of the Victorian Essential Learning Standards can be addressed through the MTQ project.

"The Victorian Essential Learning Standards (VELS) Interdisciplinary Learning strand identifies a range of knowledge, skills and behaviours which cross disciplinary boundaries and are essential to ensuring students are prepared as active learners and problem-solvers for success at school and beyond. This strand focuses on ways of thinking, communicating, conceiving and realising ideas and information. It assists students to develop the capacity to design, create and evaluate processes as a way of developing creativity and innovation."
-VELS handbook

Projects and investigations address all four VELS domains of the Interdisciplinary Learning strands:

- Communication
- Design, Creativity and Technology
- Information and Communications Technology (ICT)
- and Thinking Processes.

Students are typically required to research, design, explore, create, question, articulate, communicate, think, solve problems, collaborate and communicate. Audiences often range from classmates to parents and other communities. Digital technology is frequently used as a tool for both mathematics and communication. Real-world applications, historical research, working models, done individually, in groups or even as a whole class, are all part of the process.

Projects and investigations cater for student diversity. They not only provide gifted and talented students with the opportunity to show their ability and to follow interests, explore and research, they also allow students from diverse backgrounds, particularly those from different cultures and from rural centres, to show how mathematics relates to their lives.

The Victorian Department of Education initiatives frequently cite investigative project work as a key way to engage and motivate learners.

The Maths Talent Quest is an excellent way of achieving the Interdisciplinary Learning strand. It engages students in mathematics project work and investigations and provides them with an opportunity to use ICT and communicate to their peers and a state-wide and national audience. In addition, participating in the MTQ rewards students' efforts.

MTQ supports teachers with professional learning and resources on how to implement and manage investigative projects, and how to assess and report student achievement.

MTQ investigations can become an ongoing resource for the students in future classes and the work undertaken will assist in addressing the Victorian Essential Learning Standards.

Who can enter?

All students from Prep to Year 12 can enter the MTQ. The MTQ is categorised into year levels from Prep to Year 9 and a combined Years 10-12 level. This year any VCAL students may enter free of charge.

Entries can be from:

- individuals or,
- groups of no more than 6 students or,
- classes of no more than 30 students.

If two or more classes at the same year level have investigated a common theme, entries should be submitted separately for each class ensuring that the entries address a different aspect of the investigation.

Where group or class entries involve mixed year levels, they will be placed in the higher year level category. A maximum of 8 entries per year level will be accepted for state judging.

Students following a non-standard pattern of study, for example home schooling, accelerated students and students in special programs, may choose to enter the competition in the class or year grouping that relates to their age, or they may choose to enter in an older division.

What can be entered?

See the student information sheet for a comprehensive list of what can be entered.

What is involved in a mathematics investigation?

A mathematics investigation allows students to examine 'a situation originating in mathematics or the real world which lends itself to inquiry'. It involves a series of steps:

- getting to know the situation and formulating questions
- exploring systematically
- making conjectures
- testing conjectures
- explaining or justifying results
- extending the situation by formulating further questions
- summarising the findings

Investigations require students to use mathematical processes to understand the problem/situation. The types of processes developed by work on investigations include:

- data collection
- symbolising
- classifying
- simplifying

- abstracting
- following/extending patterns
- conjecturing
- communicating
- justifying/proving
- generalising/hypothesising
- predicting

The important difference between a mathematics investigation and a mathematics problem-solving task is that students need to formulate their own questions from a given situation. By formulating their own questions, students give teachers a clear indication of their level of knowledge and/or understanding of the topic.

How to enter

- NOTE - you must complete the judging at your school level before you enter the state competition

Please refer to the MTQ Coordinator's Checklist. Information on how to enter is summarised below:

- Organise and complete your judging at the school level
- Complete and submit the online registration form for State level judging by the 20 July 2011. This can be found on the MAV website at www.mav.vic.edu.au/activities/student-activities/maths-talent-quest.html
- Complete the payment details online to ensure your entries are registered
- Nominate your judge/s and fill out their details and availabilities online – this is compulsory. Please see the judging opportunites information sheet.
- Wait for the MTQ information package to arrive which will contain the official entry stickers to be attached on each component of each entry

Please note:

- A maximum of 8 entries per year level will be accepted for state judging.
- No refunds will be given once your registration has been processed.
- Registrations close at 5pm on Wednesday 20 July 2011. No late registrations will be accepted.

MTQ cost structure

Number of entries per year level (max 8)	Fee per year level - MAV members (incl GST)	Fee per year level - non members (incl GST)
1	$20	$25
2	$40	$50
3	$60	$75
4	$80	$100
5	$100	$125
6	$120	$150
7	$140	$175
8	$160	$200
In 2011, VCAL students can enter the MTQ free of charge.		

Delivery of entries

All entries must be brought or sent to the MTQ state judging centre at The Odeon, La Trobe University, Kingsbury Drive, Bundoora on Thursday 11 and Friday 12 August 2011 between 8.30am and 5pm.

All entries, hand delivered or couriered, must be received within these times.

If delivering entries by post, please address to:

MAV MTQ state judging centre
c/o Brad Richards
La Trobe University
Bundoora
Victoria 3086

Every component of each entry must be clearly labelled with the official barcoded MTQ entry sticker which will be posted to you after your online registration is received.

Note: The total dimensions of the entry, including all components, should not be larger than 70cm in any direction. Failure to comply with these requirements will lead to disqualification.

Whilst great care is taken when handling entries, the MAV cannot accept responsibility for loss or damage to entries.

Notification of results

Schools will be notified by email of winning entries between Monday 29 August and Friday 3 September 2011. The judges decision is final and no correspondence will be entered into.

All entries (except High Distinction) must be collected from the state judging centre between 9am and 5pm on Tuesday 23 August, 2011. Entries sent by post can be returned by post on request and at the school's cost.

Entries that are not collected by the designated time will be discarded unless prior arrangements have been made with the MTQ Coordinators.

Viewing the winning entries

After the state judging is complete, a display of the winning entries will be available for viewing at The Odeon, La Trobe University, Bundoora Campus on Monday 22 August, 9am – 5pm and Tuesday 23 August 2011, 9am- 1pm.

Prizes

A template for a Certificate of Participation will be placed on the MAV website at www.mav.vic.edu.au/activities/student-activities/maths-talent-quest.html with instructions on how to print for the students participating at the school level.

State level prizes are awarded to individual, group and class entries in the following categories:

High Distinction – Book voucher and certificate
Distinction – Book voucher and certificate
Credit - Certificate
Encouragement - Certificate

The judges reserve the right not to award any prizes if the standard of entries is not sufficiently high. The judges decision is final and no correspondence will be entered into. The top entries from each level will be judged and if considered to be of a sufficiently high standard will be forwarded for judging in The National Maths Talent Quest.

Awards ceremony

This year, the awards ceremony will be held **after** the National Maths Talent Quest judging. High Distinction, Distinction and National Award winners will be presented with their prizes at the Victorian Awards Ceremony on Thursday 27 October 2011.

Hints to get you started

- Discuss the benefits of students entering the Maths Talent Quest
- Consider contacting other teachers/schools involved in previous years
- Show MTQ PowerPoint to staff which is available at www.mav.vic.edu.au/activities/student-activities/maths-talent-quest.html
- Discuss the MTQ process at the school level or with a team of interested teachers at a teaching team level
- Include MTQ in the Mathematics Curriculum eg. Curriculum focus, parent involvement, alternative assessment opportunities etc
- Appoint an MTQ coordinator for your school
- Start working with classes early
- Recruit staff teams to assist with school and state judging as part of their Professional Learning and to gain ideas for future classroom activities
- Consider involving one entire year level in the MTQ and allocate some class time to MTQ Projects
- Class teachers can give students ideas and inspiration for project preparation; however, MTQ entries consisting of student responses to teacher-directed classroom activities do not rate highly with the judges. Students should be encouraged to carry out their own investigations of a particular theme following formal class lessons in that area
- Initiate brainstorming with the students and teachers from different KLAs, e.g. Art, Music, English etc
- Excursions to various places can initiate valuable ideas for a practical project, e.g. building sites, the zoo, the museum, Federation Square, Storey Hall, the Art Gallery, local businesses or industries
- Investigation of the mathematical content in a hobby or sport could also be encouraged
- At all times, consideration must be given to the mathematical content, originality and presentation of entries

Judging entries

Entries are to be judged in two stages:

1. School judging

The MTQ School Coordinator is required to gather a group of teachers within the school to judge and select the entries to be sent to the state judging centre. A maximum of 8 entries from each year level that best meet the state judging criteria (found at www.mav.vic.edu.au/activities/student-activities/maths-talent-quest.html) can be selected and then entered into the state competition.

2. State judging

This occurs between 8 and 14 August at the state judging centre at La Trobe University, Bundoora. Teachers in schools and other invited MAV personnel conduct judging.

It is compulsory for each metropolitan school to provide a minimum of two hours judging. Any classroom teacher is eligible to judge, however they will not be required to judge their own school entries.

State judging criteria

The state judging Rubric can be found at the MAV website at www.mav.vic.edu.au/files/student-activities/mtq/Judging-Rubric-2011.pdf

During the assessment of each entry, the judges will score according to the criteria in the state judging rubric. Please refer to this and the document in evaluating your students' work. Each student should have a copy of this before they begin their MTQ project.

National Maths Talent Quest

The following notes, compiled by judges of the National Maths Talent Quest, amplify some of the above points.

Mathematics, not presentation or multimedia expertise, forms the basis of judging decisions. All entries are examined by the judging panel for evidence of each of the following criteria:

Appropriateness of topic for year level of entrant	Allowances are made for exploration of more advanced topics by gifted students.
Mathematical content	The entry should demonstrate knowledge of a range of mathematical concepts and/or one particular mathematical concept in depth.
Mathematical processes	Evidence of how the student has undertaken the mathematics should be included. Examples of raw data or draft copies could be included to show how the project has evolved.
The project as an integrated piece of work	Not a collection of answers or work samples from children. In whole-class entries, any collection of work samples should be drawn together in some way to demonstrate the collective understandings and processes involved.
The context of the learning experience	It is very useful to include information about how the idea for the project arose and the context in which it developed, whether the result answered the initial questions etc. This can be readily applied to work by individual students, small groups and whole-class projects.
Ownership of the mathematics projects	It is highly regarded if it can be clearly demonstrated that the mathematical concepts and processes were generated by the students themselves.
Acknowledgement of resources used and support provided should be included.	

Important dates for the 2011 MTQ are listed in the answers to your questions information sheet. You can also view the dates online at www.mav.vic.edu.au/files/Answering_your_questions.pdf