

## A guide for running the 2011 <br> Australian Mathematics Competition

# mANAGER'S HANDBOOK 

A guide for running the 2011
Australian Mathematics Competition

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## ABOUT THE COMPETITION

The Australian Mathematics Competition (AMC) is a mathematics competition not a test. There are 25 multiple-choice questions and five questions that require whole number answers. Students may attempt as many questions as possible. The earlier problems may use familiar mathematics while the later problems are more difficult and are intended to challenge.

## RESULTS

Each student is given a score based on different weightings for different questions. This is different from using the number of correct responses.
Awards up to Prize are decided by comparison within the region and school year of the student. A student in a certain year in an Australian state or another country will only be compared with other students in the same group. As a result there will be different cut-offs for awards in each region (which each have their own curriculum).

Each student receives the highest possible of the following awards. In most cases:

- PRIZE is awarded to no more that one student for every 300 students within each year and region.
- HIGH DISTINCTION is awarded to students in the top $2 \%$ (top $5 \%$ for Senior) of each year and region.
- DISTINCTION is awarded to students in the top 15\% (top 25\% for Senior) of each year and region.
- CREDIT is awarded to students in the top 50\% (top 60\% for Senior) of each year and region.
- PROFICIENCY is awarded to students who achieve a preset score, but have not been awarded a Credit (or higher) certificate. The score will be set no higher than 32 points.
- PARTICIPATION is awarded to all other students.


## EXTRA AWARDS

- PRUDENCE: This will be awarded to the student in each school with the highest number of consecutive correct responses starting from question 1. If there is a tie more than one such Award can be given within a school. In order for the Award to be given the school needs to have an entry of at least 50 students and the winner must have at least the first ten answers correct.
- Each year we award a number of MEDALS to students at Year 7 (Junior) and above. The number allocated is no more than 1 for every 10,000 students entered. These are awarded to students who are outstanding within their region, within their year group and internationally. If it is necessary to distinguish ties, including perfect scores, a second round of the competition may be held. A PRIZE is also awarded to a medallist.
- All students who achieve a perfect score also receive the prestigious PETER O'HALLORAN AWARD FOR EXCELLENCE.


## MATURE AGE STUDENTS

Some schools have mature age students enrolled. These students are welcome to participate in the AMC and will receive certificates, however no student aged 21 years or over on the day of the AMC can receive a medal or prize.

## AUSTRALIAN MATHEMATICS TRUST

The Australian Mathematics Trust (AMT) is a national not-for-profit organisation and its Board includes representatives from the Australian Association of Mathematics Teachers, Australian Academy of Science and Australian Mathematical Society. The AMT administers a number of other mathematics activities such as the Mathematics Challenge for Young Australians (MCYA) and the Australian Mathematical Olympiad (AMO).

# GUIDELINES FOR RUNNING THE COMPETITION GENERAL INFORMATION 

## DATE OF THE AMC: THURSDAY 4 AUGUST 2011

SITTING THE COMPETITION ON AN EARLIER DATE IS NEVER PERMITTED. This would jeopardise the validity of scores from all schools.

SITTING THE COMPETITION ON A LATER DATE IS PERMITTED but only if authorised by your State/ Regional Director or the AMT.

There are often clashes in a busy education calendar and where clashes occur it is permitted for a school to write the competition at the next available date after the scheduled date. Such sittings should be declared on the certification form and returned to the Australian Mathematics Trust. Normally students will be eligible for prizes and other awards in these circumstances, but the Trust does reserve the right to disqualify such awards in cases where security may appear to have been breached or for a similar reason.

To ensure the integrity of the competition and to identify outstanding students, the AMC Committee reserves the right to re-examine students before deciding whether to grant official status to their score.

WRITING MORE THAN ONE PAPER. Because some questions appear on more than one paper, students will be eligible for prizes or medals but only the first paper written will be recognised as their official result. Instances of students writing a second or further paper MUST be declared by the examining school. The student will not be eligible for a certificate or award for other than the first paper attempted, but will receive a report showing performance in each question.

## COMPETITION PACKAGE

Your package should contain:

- competition papers (shrink-wrapped) including:
- plastic envelope for return of answer sheets
- cardboard protector
- pink certification form
- answer sheets
- Manager's Handbook.

Check that you have received the correct number of competition papers and sequentially numbered answer sheets. Store flat in a secure place until the day of the competition.

If extra answer sheets are required these must be obtained from the AMT. We cannot mark photocopies or answer sheets from previous years. In each division, the school receives 1 extra competition paper. These can be photocopied if necessary. For every 200 entries or part thereof, the school receives 3 extra answer sheets.
Note: The school will be charged the standard entry fee for each additional answer sheet returned.

## Address Label Coding

The total number of entrants from your school is coded onto the school address label and the label on the front of this handbook, as shown in this example:

Where:
21067 is the School Code
(please quote your school code in all communications)
MP/011 indicates 11 Middle Primary Papers ( 10 registered +1 extra)
UP/011 indicates 11 Upper Primary Papers ( 10 registered +1 extra)
J/056 indicates 56 Junior Papers ( 55 registered +1 extra)
1/048 indicates 48 Intermediate Papers ( 47 registered +1 extra)
S/023 indicates 23 Senior Papers ( 22 registered +1 extra)
A/0147 indicates 147 Answer Sheets (144 registered +3 extra)

## PLANNING THE COMPETITION

1. Before Thursday 4 August 2011, complete planning and/or bookings and ensure the following will be available:

- venue - please allow 30 minutes in addition to the competition time of:

Middle Primary and Upper Primary divisions: 1 hour (60 minutes)
Junior, Intermediate and Senior divisions: $1 \frac{11 / 4}{}$ hours ( 75 minutes)
Braille and Large Print papers: 1 hour 40 minutes ( 100 minutes)

- desks and chairs for the students
- whiteboard/blackboard or overhead projector and clock
- a supply of spare pencils (preferably 2B), erasers, scrap paper, and calculators (primary divisions only). Note that a PENCIL is to be used at all times when filling in student details and answers.

2. Supervisors are required for the competition. We suggest

- one supervising teacher to every 40 students if the students are in one hall or room
- one supervising teacher per classroom of 40 students or less if the students are in separate classrooms.

3. Photocopy the INSTRUCTIONS FOR STUDENTS (page 6) for distribution to students and display on notice boards.
4. Photocopy and complete the details on the INSTRUCTIONS FOR SUPERVISORS (page 7-8) for distribution to all supervisors. It is recommended that a meeting be held with supervisors to familiarise them with the running of the competition and the format of the answer sheets.
5. Answer Sheet School Use Only Fields


In the top right-hand corner of the answer sheet, below the mature age entry, are two fields labelled 'School Use Only I' and 'School Use Only II'. The use of these fields is optional, but really useful in a large school.
These values (if present) will be used to order the certificates within each school year. This means, for example, that the certificates for all students who fill in 7A will be grouped together, followed by those with 7B, etc. Within each of these sub-groups, the certificates will be in alphabetical order.

If you wish to use this facility, it is important that all students of a group fill in EXACTLY THE SAME columns in the School Use Only fields.
What is filled in here will appear in unobtrusive yet distinguishable characters in the bottom right-hand corner of each student's certificate and in the top right-hand corner of their individual letter. You can use either or both of these fields to identify your students in a particular way.
Some examples:
You may want to sort your certificates into classes for easier distribution perhaps 7A, 7B or 7C.
You may have students from different campuses of the one school sitting the competition. You could designate one campus ' A ' and instruct all those students to fill in oval A in School Use Only Field 11, another campus 'B' and so on.
6. Display reminder notices prior to the competition advising students of the AMC date and advising staff of classroom supervisor arrangements. Display the INSTRUCTIONS FOR STUDENTS and ANSWER SHEET on the notice board on the same day.
7. Check that you will have access on the morning of the competition to the secure area where the competition papers have been stored.

## COMPETITION DAY

## SITTING THE COMPETITION ON AN EARLIER DATE IS NEVER PERMITTED.

## Early morning on the day of the competition

1. Remove the competition papers from secure storage.
2. Check that the number of competition papers in each of the five divisions corresponds with the label on the front of this book.
3. If the number of competition papers is insufficient, photocopy the required extras. Rememberany shortfall in competition papers or any deviation from procedures must be noted on the pink certification form. If you don't have enough answer sheets, contact your regional director or AMT.
4. If the entrants are seated in a number of different locations, organise the competition papers and answer sheets into appropriate bundle sizes for the various room supervisors.
5. Distribute the instructions for the competition to all supervisors.

## AFTER THE COMPETITION

## Checking and returning answer sheets

- Check that students have correctly coded their school year e.g. ‘7’ for Year 7, ‘8’ for Year 8 etc.
- Check that both sides of the answer sheets have been filled in by the students.
- Check that students have not left their answer sheet inside their question booklet.
- Check that the pink certification form has been correctly completed.
- Please spend a few extra minutes to complete the survey on the reverse of the certification form.
- All answer sheets and the completed pink certification form should be placed into the plastic envelope with the cardboard protector (no paper clips or rubber bands) so that the school name is on the top left-hand side of the bundle. This ensures that the answer sheets arrive undamaged and are fed correctly into the optical scanner.
- The envelope of answer sheets should be dispatched to Canberra immediately after the competition. You may like to use Express Post or another courier. Overseas schools should ensure they use airmail or courier.
- If your school is returning several envelopes of answer sheets, please ensure they are dispatched as ONE consignment-this reduces the risk of an envelope being lost in the mail.
- The AMT will not accept responsibility for the marking of answer sheets that are not dispatched promptly. Please notify the AMT office if there will be a significant delay.
- Responsibility will not be taken for the marking of answer sheets damaged because the special plastic envelope(s) provided have not been used.

REMEMBER TO INCLUDE THE COMPLETED PINK CERTIFICATION FORM WITH YOUR ANSWER SHEETS

The following three pages are for you to photocopy and distribute before the competition.
The INSTRUCTIONS FOR STUDENTS can be made available to students, teachers and supervisors.
For the INSTRUCTIONS FOR SUPERVISORS, fill in the relevant details and distribute to your classroom supervisors.

## AUSTRALIAN |Thursday MATHEMATICS COMPETITION 2011

## INSTRUCTIONS FOR STUDENTS

## Sitting the paper

- The competition will take place under examination conditions.
- Silence is to be maintained at all times.
- You must not leave your seat. If you have any other questions or problems please raise your hand and wait for a supervisor.
- Working time allowed is:
- Middle Primary and Upper Primary papers: 1 hour (60 minutes)
- Junior, Intermediate and Senior papers: $11 / 4$ hours ( 75 minutes)
- Braille and Large Print papers: 1 hour 40 minutes (100 minutes)
- There is no extra reading time.
- There are 25 multiple-choice questions, each with 5 possible answers given, followed by 5 questions requiring whole number answers. The questions generally get harder as you work through the paper.
- The questions have been thoroughly checked. Each question stands as written. No further explanation of questions can be provided. Teachers may explain the meaning of words but not provide coaching.
- This is a competition not a test; do not expect to answer all questions. You are only competing against your own year in your own state or region so different years doing the same paper are not compared.
- If you wish to leave the room, a supervisor must accompany you.


## Scoring system

- Questions 1 to 10 are worth 3 points
- Questions 11 to 20 are worth 4 points
- Questions 21 to 25 are worth 5 points
- Questions 26 to 30 are worth 6, 7, 8, 9 and 10 points respectively
- No penalties apply for wrong answers
- Maximum score equals 135 points.


## Equipment

- Middle Primary and Upper Primary papers: You may use any teaching aids normally available in the classroom, such as MAB blocks, counters, currency, calculators, play money etc. Students are allowed to work on scrap paper and teachers may explain the meaning of words in the paper.
- Junior, Intermediate and Senior papers: NO calculators, slide rules, log tables, maths stencils, mobile phones or other calculating aids are permitted.
- A language dictionary may be used, but it must first be thoroughly scrutinised by a supervisor. Graph paper, ruler and compasses are allowed but are not needed.
- You may not borrow equipment without a supervisor's permission.

NOTE: B or 2B lead pencil must be used. Ballpoint and ink pen or faint pencil markings may be missed by the optical scanner.

Please do not make ANY other marks on your answer sheet as these will make the sheet unreadable.

# AUSTRALIAN |Thursday MATHEMATICS COMPETITION 2011 

## INSTRUCTIONS FOR SUPERVISORS

## AMC Supervisor

Please supervise $\qquad$ in room $\qquad$

The competition commences at $\qquad$

## Before the competition

Please collect the question papers and answer sheets from $\qquad$ at

Please arrange a supply of spare 2B pencils, erasers and working paper.

## Before students enter the room

- Arrange the desks so that no student can see the answers of another student sitting the same paper.
- Place the question papers and answer sheets on the desks.


## When students have entered the room

Please ask them not to open the papers.

- Check that no student sitting the Junior, Intermediate or Senior paper has brought calculating aids (e.g. calculator, log tables, slide rule or mobile phone). Language dictionaries are allowed, but check them for loose pages or insertions. NOTE: Calculators are allowed for students sitting the Primary papers.
- Check that all students have a pencil, eraser and working paper.
- You may explain the meaning of unfamiliar words but not provide any coaching with your explanation.

Please ensure that students understand the need to work under exam conditions.

## Completing the answer sheet details

As a group, help students to complete their school and student details on the answer sheet. We suggest that all students do this simultaneously step by step.

1. Print today's date and the name of the school.
2. Find the division of AMC paper the student is attempting, e.g. Upper Primary, and fill in their Australian School Year next to it. (Ensure that students do not code ' 11 ' for 2011 by mistake). If the school year is not completed correctly, the paper won't be marked.
3. Code in the columns headed 'Sex' and 'Date of Birth'. All the columns should have the information written in the space at the top of the box and then the appropriate ovals filled in as well. For birth dates on the first nine days of a month, the zero oval in the left-hand column should be filled in, then the birth date put in the right-hand column. Any student aged over 21 should fill in the mature age entry oval, otherwise it should be left blank.
4. Complete the School Use Only fields if used.
5. Ask students to write and code their name. Remind them that the answer sheets are scanned and that certificates will show each student's name and school year as they are entered on the answer sheet.

## Starting the competition

Ask students to check that they have the correct paper for their year: Middle Primary (Years 3 and 4), Upper Primary (Years 5, 6 and 7*), Junior (Years 7 and 8), Intermediate (Years 9 and 10), Senior (Years 11 and 12). Note these are Australian school years. * WA, SA, QLD \&t NT only.

Please read out the instructions on the front of the competition paper and ensure that students understand them.
Ensure that students are familiar with the instructions for completing their answer sheets. Stress the importance of marking just one answer per question, and of fully erasing any errors. Also stress the importance of checking that the number of the answer they are filling in is the same as the number of the question they are answering. This is particularly important if they decide to leave a question blank.

Remind them to record their answers on the answer sheet. Sometimes students mark the question paper but forget to code their response on the answer sheet.
Start the competition, and inform students of the finishing time.

## During the competition

Please ensure that examination conditions are maintained.
Complete the following details:

| Australian Year level: | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Number of students: |  |  |  |  |  |  |  |  |  |  |

## Finishing the competition

Ask students to stop writing and sit quietly until all papers are collected.
Collect the answer sheets, checking that the student details are filled in correctly, especially the school year (e.g. ' 7 ' for Year 7, '8' for Year 8 etc.), school name, student's name and checking that lead pencil has been used. Check that both sides have been completed. Check that no answer sheets are left inside the question papers.

## Returning the answer sheets

Please return this form and the students' answer sheets to $\qquad$ immediately after the competition. Please check that you have filled in the number of entries from the group you supervised and that all answer sheets have the school name in the top left-hand corner. The cut-off corners on the bottom right of the page will then line up correctly.

Thank you very much for your assistance.
(signed)
School AMC Manager


Australlan Mathematics Trust

## SAMPLE ANSWER SHEET - FRONT



## SAMPLE ANSWER SHEET - BACK



## SAMPLE CERTIFICATION FORM

## Australian Mathematics Competition

AN ACTIVITY OF THE AUSTRALIAN MATHEMATICS TRUST

## CERTIFICATION FORM

to be returned with answer sheets


## UNDER NO CIRCUMSTANCE IS THE AMC TO BE GIVEN TO STUDENTS BEFORE THURSDAY 4 AUGUST 2011

SCHOOL DETAILS -
School Code:
(on handbook lab $\square$
School Name:
Competition Manager: $\qquad$
School Address: $\qquad$
Suburb: $\qquad$ Post Code: $\qquad$
Country: $\qquad$
Email: Phone: $\qquad$

## COMPLETE THE FOLLOWING -

A. Number of answer sheets returned in each Division is:

IMPORTANT: The total number is a KEY CHECK STEP in the AMC processing. Please ensure the correctness of the total.

| PRIMARY DIVISIONS (Australian School Years) |  |  |  |  | SECONDARY DIVISIONS (Australian School Years) |  |  |  |  |  | TOTAL <br> TOTAL ANSWER SHEETS ALL YEARS |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| MIDDLE PRIMARY |  | UPPER PRIMARY |  |  | JUNIOR |  | INTERMEDIATE |  | SENIOR |  |  |
| YEAR 3 | YEAR 4 | YEAR 5 | YEAR 6 | YEAR 7 | YEAR 7 | YEAR 8 | YEAR 9 | $\begin{gathered} \text { YEAR } \\ 10 \end{gathered}$ | $\begin{gathered} \text { YEAR } \\ 11 \end{gathered}$ | $\begin{gathered} \text { YEAR } \\ 12 \end{gathered}$ |  |
|  |  |  |  |  | , |  |  |  |  |  |  |

B. Number of return envelopes sent to AMT in Canberra is:
C. The guidelines for running the AMC were followed with the following exceptions:
$\qquad$
$\qquad$
$\qquad$
$\qquad$
D. Date students sat the AMC was: $\qquad$
E. Signed:


NOTE: To ensure the integrity of the competition and to identify outstanding students, the AMT reserves the right to re-examine students before deciding whether to grant official status to their scores.

## YOUR SCHOOL DETAILS

IMPORTANT - were you happy with your school name as printed on the AMC certificates last year? The school name we will print on the certificates will be the name that is printed on the label on the front of this handbook.

If you wish to change this name or if any other contact details have changed please let us know now either by:

Online www.amt.edu.au

Mail Competitions
Australian Mathematics Trust
University of Canberra Locked Bag 1
Canberra GPO ACT 2601
Australia
Fax Competitions
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+61262015052 (from overseas)
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## AUSTRALIAN STATE DIRECTORS

## ACT

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## OTHER REGIONS

For other regions contact the
Australian Mathematics Trust. (See
ACT.)

