



Computational
& Algorithmic
Thinking

MANAGER'S HANDBOOK

A guide for running the 2018 CAT

AUSTRALIAN MATHEMATICS TRUST

www.amt.edu.au





Computational & Algorithmic Thinking

27 March 2018

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ABOUT THE CAT

The Computational and Algorithmic Thinking (CAT) competition focuses on the skills behind computer programming and algorithm design, but does not require any specific knowledge of programming or programming languages. There are 9 questions to be completed in one hour.

The CAT is offered in two formats: pen and paper, and online. Competition managers select a format when entering students.

Date of the CAT

Tuesday 27 March 2018

Sitting the CAT pen and paper version on an earlier date is not permitted under any circumstance.

IMPORTANT

Are you happy with your school name as printed on the label on the front of this handbook?

If your school name or contact details have changed please notify us now:

- by mail: Computational and Algorithmic Thinking (CAT)
Australian Mathematics Trust
170 Haydon Drive
Bruce ACT 2617
Australia
- by fax: (02) 6201 5052 (within Australia)
+61 2 6201 5052 (from outside Australia)
- by email: informatics@amt.edu.au

PEN AND PAPER VERSION

CAT rules

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

SITTING THE CAT ON A LATER DATE IS PERMITTED when there are compelling reasons, but such sittings must be declared on the certification form. The late sitting should be as close as possible to the official date. Students will be eligible for awards, but the Trust reserves the right to disqualify such awards where security may appear to have been breached.

Please notify supervisors of these rules:

- **No student is to leave** the room during the CAT unless accompanied by a supervisor. Students are to remain in the room until the CAT has concluded.
- **Students are NOT permitted to supervise the CAT** or handle the completed answer sheets under any circumstance.
- **Supervisors must collect all the CAT papers and answer sheets on the day of the CAT.** CAT papers may be returned to students one week after the CAT and if students want their own CAT paper returned to them, they can write their name in the space provided on the front.

To ensure the integrity of the CAT and to identify outstanding students, the AMT reserves the right to re-examine students before deciding whether or not to grant official status to their score.

CAT package

Your package should contain:

- CAT papers
- plastic envelope for return of answer sheets
- cardboard protector for return of answer sheets
- pink certification form
- marksense answer sheets.

Check that you have received the correct number of CAT papers and answer sheets as per the label on the front of this book.

Store flat in a secure place until the day of the CAT.

If extra answer sheets are required, these must be obtained from the AMT.

The school receives one extra CAT paper in each division.

For every 200 entries or part thereof, the school receives three extra answer sheets.

Note: The school will be charged the standard entry fee for additional answer sheets returned over the number provided by AMT. Photocopied answer sheets or sheets from previous years cannot be processed.

Address label coding

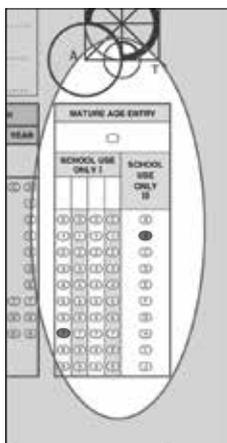
The total number of entrants from your school is coded onto the school address label as well as the label on the front of this handbook, as shown in this example:

11006	UP/23	J/11	I/31	S/91	A/159
School CAT Manager Canberra High School Bindubi Street Macquarie ACT 2617					

Where:	11006	is the School Code (please quote this number in all communications)
	UP/23	indicates 23 Upper Primary CAT Papers (22 entered + 1 extra)
	J/11	indicates 11 Junior CAT Papers (10 entered + 1 extra)
	I/31	indicates 31 Intermediate CAT Papers (30 entered + 1 extra)
	S/91	indicates 91 Senior CAT Papers (90 entered + 1 extra)
	A/159	indicates 159 Answer Sheets (156 papers + 3 extra)

CAT planning

1. **Before Tuesday 27 March 2018**, complete planning and bookings to ensure the following will be available:
 - **venue—please allow 75 minutes** (60 minutes working time)
 - **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**. Note that a PENCIL is to be used when filling in details and answer sheets.
2. **Supervisors required for the CAT**
 - 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 and complete the details on the INSTRUCTIONS FOR STUDENTS (page 9) for distribution to students and display on noticeboards.
4. Photocopy and complete the details on the INSTRUCTIONS FOR SUPERVISORS (page 7) for distribution to all supervisors. It is recommended that a meeting be held with supervisors to familiarise them with the running of the CAT and the format of the answer sheets.
5. **Display reminder notices** a week prior to the CAT, advising students of the CAT date and advising staff of the supervisor arrangements. Display the INSTRUCTIONS FOR STUDENTS and answer sheet on the noticeboard on the same day.
6. **Check that you will have access**, early on the morning of the CAT, to the secure area where the CAT papers have been stored.
7. **Advise students** to bring pencils, erasers, rulers, calculators, scrap paper and printed language dictionaries.
8. Complete Answer Sheet Fields (School Use Only I and II)



- The use of these fields is optional, but really useful in a large school. You can use either or both of these fields to identify your students for particular purposes.
- What is filled in here will appear in unobtrusive yet distinguishable characters in the bottom-right corner of their individual letter.
- For example: A school may want to sort certificates into classes for easier distribution—perhaps 7A, 7B or 7C.
- A school may have students from different campuses sitting the CAT. You could designate one campus 'A' and instruct all those students to fill in oval A in School Use Only field II. Similarly, the other campus could be designated campus 'B' in School Use Only field II.

Sample shown here is coded 7B

CAT Competition Day

1. Remove the CAT papers from the secure storage.
2. Check that the number of CAT papers in each of the three divisions corresponds with the label on the front of this book.
3. If the number of CAT papers is insufficient, photocopy the required extras.
Remember that any shortfall in CAT papers or any deviation from procedures must be noted on the pink certification form.
4. If the entrants are seated in a number of different locations, organise the CAT papers and answer sheets into appropriate bundle sizes for the various room supervisors.
5. Distribute the instructions for the CAT to all supervisors.
6. Complete the pink certification form.

After the CAT

Return completed answer sheets.

1. Check that students have correctly coded their school year e.g. '7' for Year 7, '8' for Year 8 etc.
2. Check that the pink certification form has been correctly completed.
3. All answer sheets and the completed pink certification form should be placed into the plastic envelope(s) with the cardboard protector (no paper clips or rubber bands) so that the school name is on the top-left side of the bundle. This ensures that the answer sheets arrive undamaged and are fed correctly into the optical scanner.
4. 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.
5. The envelope of answer sheets should be dispatched to the AMT within 24 hours. You may like to use Express Post or another courier.
6. The AMT will not accept responsibility for the marking of answer sheets that are not dispatched promptly. Please notify the AMT office if this is not possible.

Remember to include the completed pink certification form with your answer sheets.

The following FOUR pages are for you to photocopy, fill in the relevant details and distribute to your classroom supervisors.



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CHECKLIST FOR THE CAT MANAGER

- Preliminary arrangements/bookings made
 - supervisors
 - location
 - time
 - desks and chairs
 - supply of B or 2B pencils and scrap paper

Supervisor's name	Class	Location	Time

- INSTRUCTIONS FOR STUDENTS distributed or displayed
- INSTRUCTIONS FOR SUPERVISORS distributed
- Certification form correctly completed
- Answer sheets and certification form mailed to the AMT (date, time and location)

-
- CAT papers returned to students one week after the date of the CAT



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INSTRUCTIONS FOR SUPERVISORS

Supervisor's name _____

Class _____

Location _____

Time _____

to _____

Before the CAT

1. Collect the following from the school CAT Manager:
 - CAT papers
 - answer sheets
 - supply of spare B or 2B pencils, erasers and scrap paper.
2. Arrange the desks so that no student can see the answers of another student in the same division.
3. Place the CAT papers and answer sheets on the desks.

When students are seated in the room

4. Ask students **NOT** to open the CAT papers. Check that:
 - no student has brought a mobile phone into the room
 - no student has brought aids other than calculators and language dictionaries (check dictionaries for loose pages or insertions)
 - all students have a B or 2B pencil, eraser and scrap paper
 - all students understand the need to work under examination conditions.
5. We suggest that all students complete the details on their answer sheets simultaneously step by step:
 - date
 - name of the school
 - student's name
 - student's school year
 - gender
 - date of birth (*for birthdates on the first nine days of the month, the zero oval in the left-hand column should be filled in, then the birth date in the right-hand column*).

Advise students that the answer sheets are scanned and that certificates are printed with each student's name, school and school year AS ENTERED on the answer sheet.

If the school year is not completed correctly, the paper cannot be marked.

6. Ask students to check that they have the correct CAT paper for their division: Upper Primary Years 5–6, Junior Years 7–8, Intermediate Years 9–10, Senior Years 11–12. (Note these are Australian school years.)
7. Ask students to record their name on the front of the CAT paper if they want their paper returned to them after the CAT.



Starting the CAT

8. Read out the following instructions and ensure that students understand them:
 - Do not open the CAT paper until told to do so.
 - Maintain silence at all times.
 - Do not bring mobile phones into the room.
 - You may use calculators and printed language dictionaries.
 - You may NOT borrow equipment without a supervisor's permission.
 - There are 9 questions. Questions 1–6 are multiple-choice with five possible answers given. Questions 7–9 (each with three parts) require a three-digit answer. Attempt all questions. Penalties do not apply.
 - You are allowed working time of one hour (60 minutes). There is no extra reading time.
 - This is a competition not a test; do not expect to answer all questions.
 - Diagrams are NOT drawn to scale. They are intended only as aids.
 - The questions have been thoroughly checked. Each question stands as written. No further explanation of questions can be provided.
 - You must not leave your seat. If you have any other questions or problems, please raise your hand and wait for a supervisor.
 - If you wish to leave the room a supervisor must accompany you.
 - Record all your answers on the answer sheet provided.
 - Use B or 2B lead pencils only. Ball point and ink pen markings may not activate the optical scanner.
 - Do not make any other marks on the answer sheet as these may make the sheet unreadable.
 - If you make an error, use a plastic eraser to completely remove all lead marks and smudges.
 - Check that the number of the answer you are filling in is the same as the number of the question you are answering. This is particularly important if you decide to leave a question blank.
 - To ensure the integrity of the CAT and to identify outstanding students, the AMT reserves the right to re-examine students before deciding whether to grant official status to their score.
9. Start the CAT and inform students of the finishing time.

During the CAT

10. Please ensure that examination conditions are maintained and the rules set out below are followed.
 - If a student wishes to leave the room, a supervisor must accompany the student otherwise the student will not be re-admitted.
 - Late students may be admitted up to half an hour after the CAT has commenced but no extra time is to be allowed.
 - No student may leave early.
11. Complete the following details:

Australian Year level	5	6	7	8	9	10	11	12	TOTAL
Number of students									

Finishing the CAT

12. Ask students to stop writing and sit quietly until all the CAT papers are collected.
13. Ask students to hold their answer sheets so that the side showing the school name is uppermost, and the cut-off corner is away from them. Collect the answer sheets, checking that the student details are filled in correctly, especially the school year, school name and student's last name, and that lead pencil has been used. Also check that the students have coded their answers onto the other side of the answer sheet.

Returning the answer sheets

14. Return this form and the students' answer sheets to the CAT manager immediately after the competition.
15. Check that you have filled in the number of entries (above) for the group you supervised and that all the answer sheets have the school name in the top-left corner. The cut-off corners in the bottom right of the page will then line up correctly.



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INSTRUCTIONS FOR STUDENTS

Class	Location
Time	to

- Do not open the CAT paper until told to do so.
- Maintain silence at all times.
- Do not bring mobile phones into the room.
- You may use calculators and printed language dictionaries.
- You may NOT borrow equipment without a supervisor's permission.
- There are 9 questions. Questions 1–6 are multiple-choice with five possible answers given. Questions 7–9 (each with three parts) require a three-digit answer. Attempt all questions. Penalties do not apply.
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- To ensure the integrity of the CAT and to identify outstanding students, the AMT reserves the right to re-examine students before deciding whether to grant official status to their score.

ONLINE VERSION

The CAT is also available in an online format for schools. Students compete using a laptop or handheld device or on school computers.

A comprehensive guide to running the CAT online can be found in the Manager's Handbook online version which can be downloaded from the website **www.amt.edu.au/informatics/cat/**

Consider running the CAT online in your school in 2019.

GET READY WITH GetSet CAT & GetSet AMC

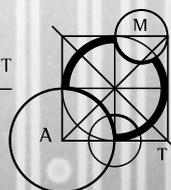
GetSet CAT and GetSet AMC are the best online training programs available to prepare for the Computational and Algorithmic Thinking (CAT) competition and the Australian Mathematics Competition (AMC).

GetSet provides self-paced, online courses designed to help students of all levels prepare effectively for these competitions. The courses consist of a collection of problem sets and a mock contest to be solved in a recommended sequence.

All problem sets and the mock contest are auto-graded and students are presented with a comprehensive performance report with suggested areas for improvement. \$6.00 per person allows access for 6 months to either GetSet CAT or GetSet AMC. Schools can purchase the program for a discounted price per student.

To learn more visit the official site of GetSet training at
www.amt.edfinity.com

AUSTRALIAN MATHEMATICS TRUST



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COMPETITION ENQUIRIES:

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Fax: 02 6201 5052

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