Computational and Algorithmic Thinking

Coordinator's Handbook – Online

AMT. | CAT.

AUSTRALIAN MATHS TRUST

COMPUTATIONAL AND ALGORITHMIC THINKING

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ABOUT THE CAT COMPETITION

Computational and Algorithmic Thinking (CAT) focuses on the skills behind computer programming and algorithm design but does not need any specific knowledge of programming or programming languages. There are nine questions participants need to complete in one hour. Please allow extra time for student registration and competition administration.

Date of CAT – Wednesday May 4 to Friday May 6 2022

There will be window to sit the CAT competition online between 7 am Wednesday May 4 and 7 pm Friday May 6 (Australian Eastern Standard Time). This is to help schools that may have limited access to computers and those in different time zones. Sitting CAT on an earlier date will not be possible. Supervisors must conduct the competition in a controlled environment according to the Competition guidelines.

Register for the competition at
https://competitions.amt.edu.au/admin/

A teacher is a school administrator or educator responsible for conducting the competition. To register students, a teacher will need their registered username and password. If these are not known, a teacher can register themselves and this will be approved by AMT. Teachers enter student numbers for the competition and pay the appropriate entry fees.

Important

To make sure the school details are correct on your certificates, please let us know if your school details or contact information have changed by emailing us at competitions@amt.edu.au.

COMPETITION GUIDELINES

Please notify supervising teachers of these rules:

- No student may sit more than one division of the competition.
- No student is to leave the room during CAT unless accompanied by a supervisor. Students are to stay in the room until CAT finishes.
- Students are NOT permitted to supervise CAT.
- Supervisors must collect all scribble sheets from students on the day of the competition. These can be returned to students a week after CAT.

To maintain 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 score.

Competition site

The CAT competition site is at https://competitions.amt.edu.au/

PREPARING FOR THE COMPETITION

Student registration

Students register individually for the CAT online on the day of the competition.

To prepare for this, a teacher should go to https://competitions.amt.edu.au/admin, log in and click on **Students**.

For online competitions, a list of generated usernames will display. The usernames are different for each competition. To select only the usernames for CAT, enter 'CAT' in the username box.

Underneath this list are three export file icons, one creates a CSV file, one an XLS file and one creates a HTML document

We recommend using the HTML version because it is the most user friendly way to distribute student passwords on the day.

Click on the 'Export HTML' button to download the sheet (shown below).

This will download a file with student usernames and logins. Clicking on the download will display a webpage. There will be no Firstname or Lastname shown unless you've previously edited each student record within the competition portal to include these details.

If you print this webpage (Ctrl+P) it will format as the example below. You can then cut these out and distribute to the students. Please make sure you print these as single sided.

We recommend this version because it gives consistent sizing for usernames and passwords and enables faster cutting out of usernames than the Excel version. It will fit 33 student usernames per A4 sheet

- **VERY IMPORTANT**: Do NOT issue passwords to students until the competition lesson.

Spreadsheet Versions

If you choose XLS or CSV, these files have 7 columns: Year at School, Grade, Firstname, Lastname, Username, Password and Gender. You can print these and hand them to students immediately before the competition so they can log in using the supplied username and password, then enter their personal details. Please note, you will need to expand the field column width to view all the passwords.

When it is competition time, students go to https://competitions.amt.edu.au/ and click on LOGIN at the top-right (see below). They then enter their CAT username and password and click the green Login button.

Students will be prompted to enter their first name, last name and class (i.e. school year), birthdate and gender and click the Save button.

After clicking Save, students will see this message (see below).

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WELCOME   COMPETITIONS   ACCOUNT   LOGOUT

Your information has been saved. Click on 'Competitions' to start your competition.

Please fill out the form below before participating

First name	
Last name	
Year at School	7
Birthdate	01 01 1970
Gender	unspecified

Save

Students then click on Competitions to see a list of the competition(s) to which they have access. The student selects the correct division and year from the list. The clock will begin as soon as they click **Start**.

System requirements

The online competition application is cloud-based and only needs broadband connectivity and an internet browser. There is no software installation needed.

The easiest way to check compatibility is to organise each class taking part in the competition to try one of the practice sets, in the room where they will do this year's competition. You can find these at https://competitions.amt.edu.au/

> **VERY IMPORTANT:** Do <u>NOT</u> issue students with their usernames and passwords before the event. This could embarrass your students. If they log in to the competition before the set time at your school, they will find themselves out of time on competition day. It may look like they had tried to cheat. **They do not need to log in to use the practice sets.**

If the students can do the practice sets without difficulty, then skip to the Room requirements section.

Make sure that student accounts on your system are allowed to use JavaScript.

Make sure all of your students can log in to their accounts and are not blocked by any school filters from using this address: https://competitions.amt.edu.au

Run a thorough test of each lab to be used for the competition, in case the computers have been set up with different permissions. If you are using iPads or other tablets, also run a test on those.

Ask your IT Manager how many different student account types they have set up and test them all.

Running a test

1. Log in to a computer with a student's school account. If your school has different permissions for different age groups then it is wise to use the most restricted student account for testing.
2. Open a browser and go to https://competitions.amt.edu.au
3. Click on COMPETITIONS
4. Click on one of the links to test.
5. Feel free to let your students try these themselves. They will not need to log in.

> **VERY IMPORTANT:** Do <u>NOT</u> issue passwords to students until the lesson when they are doing the competition.

Room requirements

The competition needs to be conducted in a quiet area under supervision. The following should be available:

1. desks, chairs, and computers or tablets with internet access (one device per student and cannot be a mobile phone)
2. ample supply of pencils and scrap paper
3. calculators (optional), but not an internet-connected calculator
4. whiteboard or blackboard and a clock visible to all students (optional but recommended).

Selecting competition supervisors

An authorised supervisor may be a competition teacher, or any other staff member authorised to supervise the competition. Students are NOT permitted to supervise CAT under any circumstances.

1. One supervisor per 40 or fewer students is required.
2. A supervisor must supervise students for the duration of the online competition to make sure 'fair play' by all the students.
3. The supervisor must bring a mobile phone in case they need to contact the AMT. While not essential, a computer may be useful.
4. Review Instructions for supervisors for guidelines on how a supervisor should conduct the competition. Photocopy, complete, and distribute this document to each supervisor.
5. We strongly recommend that you meet with supervisors at least once before the competition to go over the entire competition process.

Scribble sheets and papers

Scribble sheets are diagrams and figures from the actual competition papers to help students. They will be available to teachers for download a few days before the competition under **Documents** on the registration website.

For your reference, you'll also find pdfs of the 2021 CAT papers in this area.

Print these sheets (one set for each student in each division of the competition) and keep them in a secure place. Distribute them to supervisors to give to the students on the day of the competition.

After the competition

After the competition, the AMT will send student results to the school email contact as well as a copy of the CAT solutions. Certificates for students will follow in the mail.

TEACHER CHECKLIST (ONLINE)

☐ Register for the competition at https://www.amt.edu.au/competitions

☐ Identify supervisors for the competition. See Selecting competition supervisors for more information. For each supervisor, fill out and distribute a copy of Instructions for supervisors for their careful review. We suggest you complete the table below, so you have all supervisor details in one spot.

Supervisor's name	Class	Location	Time

☐ Confirm compliance with system and room requirements in every room. See Preparing for the competition for more information.

☐ Meet with supervisors before the competition to go over the process.

☐ One week before the competition, send a reminder to students about the competition date and time and confirm supervisor arrangements with staff.

☐ A few days before the competition, download, print and distribute scribble sheets to supervisors. See Scribble sheets for more information. Do not distribute to students until just prior to the competition.

☐ A few days before the competition, download, print and distribute student login details to supervisors or parents/guardian. See Student registration for more information.

INSTRUCTIONS FOR SUPERVISORS

Competition URL: https://competitions.amt.edu.au

Supervisor's name

_____

Class   Location

_____

Time

_____

Before the competition

1. Go to the competition URL: https://competitions.amt.edu.au
2. Collect student usernames and passwords, one per student, from your competition teacher.
3. Collect scribble sheets, one per student (different for each division) from your competition teacher. Place them face down on each desk.
4. Make sure there is an adequate supply of spare pens or pencils and scrap paper.
5. Provide a safe place to store students' mobile phones.
6. Arrange the desks so that no student can see the computer screen of another student in the same division.
7. Write the competition URL on a whiteboard.

> **Browser requirements:** JavaScript must be enabled in your browser.

Logging in and registering students

Before beginning, make sure that every student in the room is registered and ready to begin the competition.

1. Each student must have their browser open at the competition URL: https://competitions.amt.edu.au
2. Students should then log in using their username (that starts with 'cat') and the password provided.
3. Students will be prompted to fill out their details including first name, last name and class (i.e. school year), birthdate and gender and click the Save button.
4. If competing in a non-Australian jurisdiction, you will need to check the Australian school year equivalent form and note the school year/s applicable. Australian school year level equivalents are at http://www.amt.edu.au/wp-content/uploads/2020/03/School-year-equivalents-CAT-and-AMC.pdf
5. Once a student has logged in and registered, they should click on COMPETITIONS again and select the correct paper for their division and year, one of: Upper Primary (Year 5), Upper Primary (Year 6), Junior (Year 7), Junior (Year 8), Intermediate (Year 9), Intermediate (Year 10), Senior (Year 11), Senior (Year 12). **Students should only click the Start button when the class is ready to begin**.

After students are registered and seated

1. Check that each student:

    -   **has** a pen or pencil, scribble sheets and access to scrap paper
    -   **has** the competition start page showing on their computer and no other tabs or windows are open
    -   **does not have** a mobile phone at their desk
    -   **has not** brought aids other than hand calculators and language dictionaries.

2. Read out the following instructions and make sure that students understand them:

    -   There are 9 questions. Questions 1–6 are multiple-choice and worth 3 points each, questions 7–9, each consisting of three parts, need a numeric answer from 0–999, and are worth 2 points each.
    -   You may have the competition window ONLY open on your device; you may use hand calculators, but NOT online calculators.
    -   Use the scribble sheets supplied to help in questions with diagrams.
    -   You can skip questions and return to earlier questions using the menu.
    -   You have 60 minutes to complete the competition.
    -   Press **Start** when ready. The timer starts automatically once you do.

During the competition

1. Please make sure that examination conditions are maintained. Supervisors will need to be vigilant that students are not accessing any windows other than the competition site. Record and report any breach of regulations to the AMT.
2. If any student experiences a serious computer malfunction, move the student to another computer where they can log in again and continue. Note: the timer will continue to count down during the move.
3. If a student needs to leave the room, a supervisor must accompany the student; otherwise the student will not be re-admitted.
4. If conducting multiple sessions at different times, please collect all scribble sheets immediately after each session to minimise sharing of questions.
5. Make sure no student leaves the competition area until the last student finishes.

Finishing the competition

1. The competition will finish automatically when time has elapsed. A student can also click on 'End competition' at any time.
2. Please collect scribble sheets from students. If students would like them back, please have them write their name on the top front of the sheet and return to them 14 days after the competition ends.