

# Computational and Algorithmic Thinking

Coordinator's Handbook – Paper

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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 4 May to Friday 6 May 2022

This year we are allowing a three-day window, to give you more flexible scheduling in your classes. While you can choose any time in this range, it's ideal to have your students sit CAT on the same day.

Sitting the CAT competition on an earlier date will not be possible. Supervisors will conduct the competition in a controlled environment according to the [Competition guidelines](#).

### Register for the competition at

<https://competitions.amt.edu.au/admin/>

To register students, a teacher will need their registered usernames and passwords. 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](mailto:competitions@amt.edu.au).

## COMPETITION GUIDELINES

**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** 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 AMT reserves the right to disqualify such awards where there appears to be a breach of security.

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 CAT papers and answer sheets. Papers can be returned to students a week after CAT and if they want them returned, they will need to write their name in the space provided on the front.

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

## CAT PACKAGE

You will receive a CAT package through the mail that contains the CAT competition papers. Check that you have received the correct number of CAT papers as per your order.

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

If you need extra answer sheets, please contact us at [competitions@amt.edu.au](mailto:competitions@amt.edu.au)

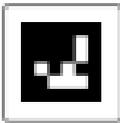
## PREPARING FOR THE COMPETITION

1. Before Wednesday 4 May 2022, complete planning, and bookings to make sure 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 (for instructions and writing finishing times)
  - clock
  - a supply of spare 2B lead pencils, erasers, scrap paper and calculators (not an internet-connected calculator). Note that students must use a PENCIL when filling in details and answer sheets.
2. Supervisors needed for the CAT competition:
  - 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. Complete the details on the [Instructions for students](#) for distribution to students and display on noticeboards and/or school communication apps.
4. Complete the details on the [Instructions for supervisors](#) for distribution to all supervisors. We recommend you hold a meeting with supervisors to familiarise them with the running of CAT and the format of the answer sheets.
5. **Send reminder notices** a week before CAT, telling students of the competition date and reminding 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** to the secure area where the CAT papers have been stored early on the morning of the competition.
7. **Tell students** to bring pencils, erasers, rulers, calculators, scrap paper and printed language dictionaries (if needed).

## HOW TO GENERATE STUDENT ANSWER SHEETS

This year we have moved to a new style of answer sheet that is scanned and loaded onto our platform for processing. This means you will no longer be required to post them back to us, but you will scan them and upload them to the platform.

The new answer sheets are **individual for each student** and can be generated by you in the weeks leading up the competition. The new answer sheets contain the Division the student is sitting and the student's name. You should complete this step before competition day to ensure you have enough time to do this. You will need to attribute these to a student to have the answer sheets successfully processed once scanned.



**C2022 CAT Senior**

Alex C



880923381111

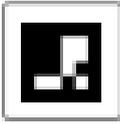
Please use 2B Pencil only

Please answer by colouring in the bubbles below

	ATSI descent	Y N <input type="checkbox"/> <input type="checkbox"/>
	Sex	M F X Prefer not to say <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
		A B C D E
<input type="checkbox"/>	Question 1	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/>	Question 2	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/>	Question 3	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/>	Question 4	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/>	Question 5	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/>	Question 6	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

Please answer by colouring in the numbers below

<input type="checkbox"/>	Question 7a	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/>	Question 7b	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/>	Question 7c	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/>	Question 8a	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/>	Question 8b	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/>	Question 8c	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/>	Question 9a	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/>	Question 9b	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/>	Question 9c	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>







To generate these answer sheets please go to the competition platform located at [www.competitions.amt.edu/admin](http://www.competitions.amt.edu/admin) and click on the link **Answer Sheets**.

School Group: Aus R/VR Schools

Postcode: 2617  
City: Bruce  
State: Australian Capital Territory

Postcode: 2  
City: BRUCE

ENR2019)  
2020: {AMC2020, CAT2020, CHA2020, ENR2020}  
2021: {AMC2021, CAT2021}

Comp Region: AAO - ACT  
Physical\_Region: AAO - ACT

**Answer Sheet Download**

When uploading names for the **PAPER answer sheets** please use the following codes for each year group for the **CAT COMPETITION**. These need to be entered into the column marked Division

- Year 5 - 239
- Year 6 - 251
- Year 7 - 237
- Year 8 - 252
- Year 9 - 238
- Year 10 - 253
- Year 11 - 240
- Year 12 - 254

Answer Sheet Document		
CAT 2022 Division: Senior	Names Download	11 OMR_Documents
CAT 2022 Division: Intermediate	Names Download	11 OMR_Documents
CAT 2022 Division: Upper Primary	Names Download	11 OMR_Documents
CAT 2022 Division: Junior	Names Download	11 OMR_Documents

**OMR Individual Download**

ID

You will see a list of your registered divisions for papers. Each of these divisions will contain enough spaces for you to enter the names of the students you have registered. In this example, we have 11 answer sheets in each division. This will also show how many sheets you have blank if you have any unassigned to students.

Next, click on **Names** for the division where you would like to add the student names.

School Group: Aus R/VR Schools

Postcode: 2617  
City: Bruce  
State: Australian Capital Territory

Postcode: 2  
City: BRUCE

ENR2019)  
2020: {AMC2020, CAT2020, CHA2020, ENR2020}  
2021: {AMC2021, CAT2021}

Comp Region: AAO - ACT  
Physical\_Region: AAO - ACT

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Answer Sheet Document		
CAT 2022 Division: Senior	Names Download	11 OMR_Documents
CAT 2022 Division: Intermediate	Names Download	11 OMR_Documents
CAT 2022 Division: Upper Primary	Names Download	11 OMR_Documents
CAT 2022 Division: Junior	Names Download	11 OMR_Documents

**OMR Individual Download**

ID

This will open a screen that looks like the screenshot on the next page.

In this screen you can enter your students' names and their **year level** (using the codes below) in the division column.

- Consent settings
- Register for Competitions
- Students
- Teachers
- Documents
- Answer Sheets
- Answer Sheet Upload
- Results and Certificates

**67 CAT 2022 Division: Senior**

When uploading names for the **PAPER answer sheets** please use the following codes for each year group for **COMPETITION**. These need to be entered into the column marked Division

- Year 5 - 239
- Year 6 - 251
- Year 7 - 237
- Year 8 - 252
- Year 9 - 238
- Year 10 - 253
- Year 11 - 240
- Year 12 - 254

**Name** CAT 2022 Division: Senior  
**School** AMT SCHOOL

**Save** **Cancel**

ID	Name	Division
1111		
1112		
1113		
1114		
1115		
1116		
1117		

**You can now do a bulk cut and paste from a spreadsheet into this list.** Please only do one competition division (Upper Primary, Junior, Intermediate or Senior) at a time. In the example below we have five Year 12 students and four Year 11 students sitting the Senior division.

- Teachers
- Documents
- Answer Sheets
- Answer Sheet Upload
- Results and Certificates

**COMPETITION**. These need to be entered into the column marked Division

- Year 5 - 239
- Year 6 - 251
- Year 7 - 237
- Year 8 - 252
- Year 9 - 238
- Year 10 - 253
- Year 11 - 240
- Year 12 - 254

**Name** CAT 2022 Division: Senior  
**School** AMT SCHOOL

**Save** **Cancel**

ID	Name	Division
1111	Alex C	254
1112	Alistair C	254
1113	Craig W	254
1114	Donna P	254
1115	Divya P	254
1116	Helen H	240
1117	Julie G	240
1118	Kate O	240
1119	Luke M	240

## PRINTING OUT THE ANSWER SHEETS

To print out answer sheets please click back to the screen **Answer sheets** and click on **Download**

- Consent settings
- Register for Competitions
- Students
- Teachers
- Documents
- Answer Sheets
- Answer Sheet Upload
- Results and Certificates

**Answer Sheet Download**

When uploading names for the **PAPER answer sheets** please use the following codes for each year group for the **CAT COMPETITION**. These need to be entered into the column marked Division

- Year 5 - 239
- Year 6 - 251
- Year 7 - 237
- Year 8 - 252
- Year 9 - 238
- Year 10 - 253
- Year 11 - 240
- Year 12 - 254

Answer Sheet Document		
CAT 2022 Division: Senior	Names	Download 11 OMR_Documents
CAT 2022 Division: Intermediate	Names	Download 11 OMR_Documents
CAT 2022 Division: Upper Primary	Names	Download 11 OMR_Documents
CAT 2022 Division: Junior	Names	Download 11 OMR_Documents

**OMR Individual Download**

You can now print this file which will contain all students from that division. It is now a case of ensuring the right student has the right answer sheets on competition day.

You can also print out individual answer sheets by scrolling down on this screen and searching by the student’s name.

**Answer Sheet Document**

CAT 2022 Division: Senior	Names	Download 11 OMR_Documents
CAT 2022 Division: Intermediate	Names	Download 11 OMR_Documents
CAT 2022 Division: Upper Primary	Names	Download 11 OMR_Documents
CAT 2022 Division: Junior	Names	Download 11 OMR_Documents

**OMR Individual Download**

ID

Name

Template (Anything) ▼

Division (Anything) ▼

Uploaded (Anything) ▼

Has a name (Anything) ▼

ID	Name	Division	Template	
1111	Alex C	Senior - Year 12	CAT 2022 Division: Senior	<a href="#" style="background-color: #00a651; color: white; padding: 2px 5px;">Download</a>
1112	Alistair C	Senior - Year 12	CAT 2022 Division: Senior	<a href="#" style="background-color: #00a651; color: white; padding: 2px 5px;">Download</a>

## COMPETITION DAY

1. Remove the CAT papers from the secure storage.
2. Check that the number of CAT papers you have is correct.
3. If you don’t have enough CAT papers, photocopy the extras needed.
4. If the entrants are spread across different locations, organise the CAT papers and answer sheets into the correct bundle sizes for the various room supervisors.
5. Distribute the instructions for the CAT competition to all supervisors.

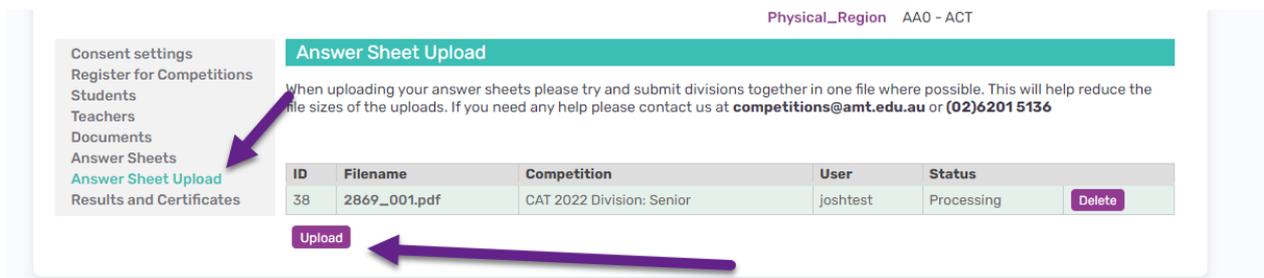
## AFTER THE COMPETITION

1. Scan completed answer sheets.
  - Check that students have correctly filled out their answer sheets.
  - Please have answer sheets scanned in by **11 May 2022** so we can process them promptly.

## HOW TO SCAN IN ANSWER SHEETS

Scan your answer sheets into your computer. It is easiest if you can do this as one division per file. This also helps reduce the files sizes when you are uploading.

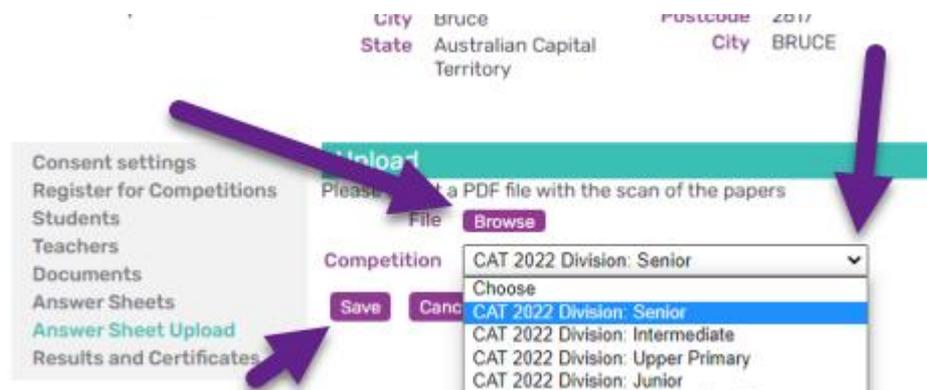
Go to the competition portal and click on **Answer Sheet Upload** and then click the **Upload** button



Next, click on **Browse** and choose your saved file of scanned answer sheets

Click on the drop-down menu and choose which division you are uploading.

Click **Save**.



You have successfully uploaded your papers for us to begin processing!

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

## COORDINATOR CHECKLIST (PAPER)

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

Supervisor's name	Class	Location	Time

- INSTRUCTIONS FOR STUDENTS distributed or displayed
  - INSTRUCTIONS FOR SUPERVISORS distributed
- 
- CAT papers returned to students one week after the date of CAT

## INSTRUCTIONS FOR SUPERVISORS (PAPER)

Supervisor’s name

---

Class

Location

---

Time

---

### Before the competition

1. Collect the following from the school CAT coordinator:
  - CAT papers
  - answer sheets
  - supply of spare 2B lead 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

1. Ask students NOT to open the CAT papers. Check that:
  - students’ mobile phones are stored outside the room
  - no student has brought aids other than calculators and language dictionaries (check dictionaries for loose pages or insertions)
  - all students have a 2B lead pencil, eraser and scrap paper
  - all students understand the need to work under examination conditions.
2. We suggest that all students check the details below on their answer sheets simultaneously step by step:
  - student’s name
  - student’s division
  - fill in the details of sex and ATSI status of they would like to fill these in.
3. Tell 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.
4. If the school year is not completed correctly, the paper cannot be marked.
5. 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.)

## Starting the competition

1. Read out the following instructions and make sure 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 questions with five possible answers given.
  - Questions 7–9 (each with three parts) need a numeric answer from 0–999 and are worth 2 points each. 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 given.
  - 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.
  - Use 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 an 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 maintain the integrity of the CAT competition and to identify outstanding students, AMT reserves the right to re-examine students before deciding whether to grant official status to their score.
2. Start the CAT competition and tell students the finishing time.

## During the competition

Please make sure that examination conditions are maintained, and the rules set out below are followed.

- If a student needs 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 30 minutes after CAT starts but no extra time is allowed.
- No student may leave early.

Ask students to stop writing and sit quietly until all the CAT papers are collected.

Ask students to hold their answer sheets so that the side showing the school's name is facing up, 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.

## INSTRUCTIONS FOR STUDENTS (PAPER)

Class

Location

Time

- 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 questions with five possible answers given. Questions 7–9 (each with three parts) need a numeric answer from 0–999 and are worth 2 points each. 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 given.
- 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 need to leave the room a supervisor must accompany you.
- Record all your answers on the answer sheet.
- Use 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 an 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 maintain the integrity of the CAT competition and to identify outstanding students, AMT reserves the right to re-examine students before deciding whether to grant official status to their score.
- For reference on how to fill out your forms correctly please see the following page.

When marking your answer on the sheet, fill in the bubble completely. The example below shows the answer to Question 1 was marked as 'D'.

	A	B	C	D	E	✓ Correct
Question 1	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	

Do not mark your answers as shown below. They cannot be marked accurately by the computer and you may not receive a mark for the question.

Question 1 <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	✗ Incorrect	Question 1 <input checked="" type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	✗ Incorrect
Question 1 <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	✗ Incorrect	Question 1 <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/>	✗ Incorrect
Question 1 <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	✗ Incorrect	Question 1 <input checked="" type="radio"/> <input checked="" type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <i>Correct</i>	✗ Incorrect

If you make a mistake, erase your incorrect answer fully with an eraser. Do not cross out one answer and fill in another answer, as the computer cannot determine which one is your answer.

$2 + 3 =$	1 digit	$20 + 21 =$	2 digits	$200 + 11 =$	3 digits
	<input type="radio"/> <input type="radio"/> <input checked="" type="radio"/>		<input type="radio"/> <input checked="" type="radio"/> <input type="radio"/>		<input type="radio"/> <input type="radio"/> <input checked="" type="radio"/>
0	<input type="radio"/>	1	<input type="radio"/>	2	<input type="radio"/>
3	<input type="radio"/>	4	<input type="radio"/>	5	<input type="radio"/>
6	<input type="radio"/>	7	<input type="radio"/>	8	<input type="radio"/>
9	<input type="radio"/>				