



AstroChallenge 2025

To: Teachers-in-charge and Participants

Dear Sir/Mdm,

On behalf of the AC Organising Committee, we would like to thank you for your keen interest in **AstroChallenge 2025**. The contents of this letter include essential information and rules to take note of:

1.) Competition Dates and Format

Day 1 : **4th June**, 13:00/13:30 (For SMO Open Category participants), NTU

Day 2 : **6th June**, 09:00 (Shift 1)/14:00 (Shift 2), NTU

Day 3 : **11th June**, 09:00 (Juniors)/14:00 (Seniors), NUS

The specific locations and timings of each day will be sent via email to all Teacher-in-Charge and Team Leaders closer to the competition dates.

Please refer to **Appendix A** for the schedule of events and **Appendix B** for more information on the rounds. **Appendix C** contains a message from the Head Question Masters to all participants. Please note that the schedule may be subject to changes.



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2.) Mode of Communication

Telegram will be used as the main mode of communication between participants and the AstroChallenge committee. Participants are highly encouraged to join the AstroChallenge Official Telegram Channel to stay up to date with any developments related to AstroChallenge 2025. The QR code to the AstroChallenge Official Telegram Channel will be sent to all Team Leaders upon the confirmation of registration.

Make sure that your telegram handle is as indicated in our online registration form.

Every now and then, we will be posting stories and updates on Instagram as well as Facebook. This will include behind-the-scenes moments and previews of the Post-Mortem. Feel free to follow us by scanning the QR code below ([@astrochallenge_sg](https://www.instagram.com/astrochallenge_sg)):





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3.) Competition

Please refer to **Appendix B** for the summarised rules and regulations and more detailed information of each round.

Please refer to **Syllabus Document** uploaded on the [AstroChallenge website](#) for the complete syllabus.

4.) Project Round

The Organising Committee **strongly urges** you to read the [Project Round Information Sheet](#) thoroughly again prior to submission. Any instructions therein must be followed. Below are the key deadlines with regards to the deliverables of Project Round:

The declaration of question attempted must be submitted by **11th May 2025, 2359 hrs (UTC +8)**. Instructions on declaring the question attempted will be provided closer to the deadline through the AstroChallenge Official Telegram Channel.

The poster for the Project Round must be submitted by **18th May 2025, 2359 hrs (UTC +8)** via email to astrochallenge@gmail.com. Penalties will be incurred for teams who provide a late submission.

5.) Things to bring along for the competition

- a. **Student Card/NRIC** for identification.
- b. **Writing materials** and **scientific calculator** (graphic calculators are **NOT** allowed). We will be following the list of approved (**scientific**) calculators for national examinations which is available on the [SEAB website](#).
- c. Please refer to the [Observation Round Packing List](#) for the required materials for Observation Round (Practical Component). Schools who wish to loan a telescope should indicate so on the registration form.
- d. **Materials required for Project Round Exhibition**, including poster printed as per instructed on the [Project Round Information Sheet](#), on **6th June (Day 2)** for the physical exhibition.

Yours sincerely,
Cindy Zhang Huixin (Ms)
Charles Lee Jun Ngai (Mr)
Project Directors, AstroChallenge 2025 Organising Committee



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Appendix A – Tentative Schedule of Events for AstroChallenge

Day 1: 4th June 2025 – NTU

Time	Junior	Senior
1230 – 1300	Registration and Attendance Taking*	
1300 – 1330	Opening Address	
1330 – 1600	Individual Round	
1600 – 1615	Team Round Briefing	Team Round Briefing
1615 – 1830	Team Round	Team Round
1830 – 1945		Dinner
1945 – 2015		Observation Round (Theory) Briefing**
2015 – 2230		Observation Round (Theory)**

* Participants attending Singapore Math Olympiad Open Category may register by 1330 hrs. Participants are highly encouraged to inform the AstroChallenge Organising Committee that they are participating in the Olympiad to facilitate the registration process.

** Observation Round is an inter-school component. Only 5 participants from each school will participate in the Observation Round as the School's representative.



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Day 2: 6th June 2025 – NTU

	Junior	Senior
0900 – 0930	Shift 1: Registration/Attendance Checks	
0930 – 1000	Briefing for Project Round	
1000 – 1230	Project Round (Shift 1)	
1230 – 1400	Lunch Time/Preparation for Shift 2	
1400 – 1430	Shift 2: Registration/Attendance Checks	
1430 – 1500	Briefing for Project Round	
1500 – 1730	Project Round (Shift 2)	
1730 – 1900		Dinner
1900 – 2000		Observation Round Briefing + Setting up for scopes *
2000 – 2230		Observation Round – Practical Component (Senior Category only) *

* Observation Round is an inter-school component. Only 5 participants from each school will participate in the Observation Round as the School's representative.

Day 3: 11th June 2025 – NUS

0900 – 0930	Registration/Attendance Checks
0930 – 1200	Finals 1 (Junior Category)
1200 – 1215	Prize Presentation (Junior Category)
1215 – 1345	Lunch
1345 – 1400	Registration/Attendance Checks
1400 – 1630	Finals 2 (Senior Category)
1630 – 1645	Prize Presentation (Senior Category)
1645 – 1830	Post-Mortem



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Appendix B – Summarised Rules and Regulations for AstroChallenge

Please note that this is simply a summarised version of the rules and regulations. For the full set of rules, please refer to the Rules and Regulations document on the AstroChallenge 2025 website. The AstroChallenge Organising Committee reserves the right to amend any of the rules contained herein. Participants will be notified of the relevant changes.

General rules

1. Unless otherwise explicitly specified, any communication devices or devices with storage and/or display capabilities are not to be used during all the rounds.
2. Unless otherwise explicitly stated, only text written/typed/spoken in English shall be marked and scored.
3. Participants are not restricted from using any other language for purposes other than to be marked or scored.
4. Only scientific calculators found in SEAB's approved list of calculators are permitted. No other calculators will be allowed in this competition.
5. Any team caught cheating will be subjected to disciplinary/remedial action, including but not limited to being reprimanded, having score deductions or being immediately disqualified. The teacher-in-charge and their respective school will be notified in the event of cheating. After investigation, the Organising Committee may, at its discretion, denounce the actions of the said team publicly as a deterrence as well as make known of any punishments awarded.
6. The tabulation of the points at any stage in the competition, including the total score, is final. No correspondence or representation will be entertained.
7. At the discretion of the Organising Committee, the Top 50% of Individual Round, Team Round, Observation Round, and Project Round scores may be released. Unreleased results will only be made available upon the Teacher-in-Charge's or an authorised agent's (who must be a participant) request. Each school may only view its own students' scores.



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Summarised Rules and Regulations for Specific Rounds:

Individual Round

Duration: 2 hours

- A maximum of 5 members per team can take part. Participants may leave before the time limit, but may not leave within the last 15 minutes of the paper.
- The overall points for the Individual Round will be the average of the marks from the best 4 individuals in the team.
- There will be a total of 50 Multiple Choice Questions (MCQs) in this round. Each MCQ contains 5 options.
- Participants start off with 50 points.
 - 2 marks will be given for a correct answer.
 - 1 mark will be deducted for a wrong answer.
 - 0 marks will be given for blanks.

A maximum of 7 blank answers are allowed from each individual, after which all other blank answers will be considered as wrong.

- This round will be **closed book**. Any participants found to be bringing in reference materials or unauthorised notes will be subject to investigation and penalties.
- A “*Best Astronomer*” from each category will be selected based on the individual scores for this round. In the event of a tie, several tiebreakers (e.g., most correct answers) will be used to break the tie.
- The Junior Category Individual Round paper will not be the same as the Senior Category Individual Round paper.
- Scripts with illegible names or schools will not be marked.



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Team Round

Duration: 2 hours

- Only a maximum of 4 participants per team may take part in the Team Round. The team reserve will not be involved, unless one member of the team is absent and/or unwell.
- There will be 4 structured questions. Each structured question will contain around 20 marks, up to a total of 80 marks.
- The points awarded to the team for this round is the total sum of marks awarded across all questions.
- The first structured question will contain short open-ended questions that focus on the qualitative understanding of basic concepts.
- The use of a cheat sheet is permitted for this round. Each participant is allowed to prepare a single piece of A4-sized paper (double sided) with **handwritten** contents. Participants are allowed to share their cheat sheets within the team during the round.
- The cheat sheet should only consist of a singly piece of A4-sized paper and must not include any other unauthorised materials such as post-it notes. Participants found bringing in other unauthorised materials will be subject to investigations and penalties.
- For the Junior Category Team Round, one of the questions will be on practical astronomy and the other three questions will be on other topics.



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Observation Round (Senior Category only)

Relative Weightages:

Round Name	Weightage
Theory Component	40%
Practical Component	60%

Duration:

Theory: 2 hours

Practical: as long as it takes but no later than 2230 on the day of the Practical Component

Venues:

Theory – NTU, on Day 1

Practical – NTU, on Day 2

There will be ushers to guide participants to the exact venue on the day itself.

- This is an inter-school round.
- Each school may send **up to 5 participants** to participate in this round. The school can choose these number of participants out of all its participating teams to form the Observation Team. The score obtained by this Observation Team will be the Observation Round score for all teams for that school.
- The two components will be explained further in detail below:

Theory Component

- The Theory Component of the Observation Round is held on Day 1.
- This round evaluates participant's knowledge of how to stargaze in theory. As such, any in relation to Practical and Observational Astronomy except for scope handling will be assessed in this component.
- There will be two sections to the Theory Component: A Night Sky Talk (NST), and a Written Paper. The Written Paper will contain open-ended questions.
- Observation Teams will attempt the NST as a team but will be split into groups of 3 and 2 for the Written Paper.
- The Theory Component will be **closed book**. Participants may not bring in any reference material for the component. Doing so will result in disqualification and related investigative procedures.



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- The stargazing software that may be used in the theoretical observation round is Stellarium (<https://stellarium.org/>).
- Each team will be given 10 minutes to prepare a NST on a random half of the celestial sphere. During this period, teams must adhere to the following settings on Stellarium:
 - Constellation lines, names, art: OFF
 - Cardinal points: OFF
 - Grids: OFF
 - Labels for planets, solar system objects, deep sky objects, exoplanets, satellites and meteor showers: OFF
 - Star labels and markers: OFF
 - Ground (zero horizon landscape) and atmosphere: ON
 - Projection: Stereographic
- Observation Teams will have to present their night sky talk to a panel of judges. Each team will be given **no longer than 10 minutes** to present, else a penalty will be incurred. Stellarium is expected to be used as visual aid to the presentation.
- Each of the team members will have to present at least one part of the night sky talk, otherwise a penalty applies.
- At any one time, one member from the Observation Team is expected to be operating Stellarium (projected onto the screen), helping the member giving the talk.
- The target audience of the presentation is the general public.
- Participants will not be assessed on solely how many celestial objects they can identify. Instead, they should aim to include a diverse range of objects as well as be extremely engaging.
- To ensure fairness, Observation Teams that are not presenting the NST will be quarantined.
- Participants are not allowed to use their mobile phones and other electronic devices throughout the Theory Component.

Practical Component

- The Practical Component of the Observation Round is held on Day 2.
- Members from other teams and visitors from schools are allowed to be silent observers for the Practical Component.
- Participants may bring along **any reference materials, subjected to checks** before the commencement of the Practical Component.
- Only telescope set-ups not deemed to be a danger to anyone around by the AstroChallenge Organising Committee are allowed to be used for the Practical Component.
- At any one time, only **1 person** from each school's Observation Team is allowed to handle the scope except during the set up and tear down.
- Teams are to keep to their allocated areas.



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- Participants are expected to complete their observation log sheets (provided). They will also be evaluated on their telescope handling and alignment skills. Judges will verify each object found by the team.
- GOTO-enabled mounts/scopes and any form of computerised mounts/scopes are **NOT allowed** to be used during this round **unless the motor and computer are switched off and the scope operated manually**.
- Participants are expected to pack their equipment in shock-absorbing material to ensure it will not be damaged during transportation.
- The organisers, the AstroChallenge Organising Committee, the judges, NTU and/or NUS will **not** be liable for any loss or damage of equipment at any point of time during the competition.
- This round is dependent on the weather and in case of inclement weather, the AstroChallenge Organising Committee reserves the right to call off or replace the round.
- For the avoidance of doubt, the AstroChallenge Organising Committee cannot be held liable for the weather or other such frustrating events beyond their control.
- Please refer to the [recommended equipment packing list](#) for equipment that Observation Teams are encouraged to possess during the Practical Observation Round.
- Participants are allowed to use only torchlights with a red-coloured filter to preserve night vision of all participants. This may be disregarded in the event of wet weather or emergencies.
- Please take note that the **following acts are strictly prohibited** for the Practical Component:
 - Putting any mobile devices (ie: Phone, Tablet, etc) against any parts of the telescope set-up
 - Attaching any mobile devices to the telescope set-up through any mechanical connections (ie: through a bracket, etc)
 - Using mobile devices for telescope alignment
 - Usage of Astrohopper (for any parts of the practical component)

Any celestial objects found using Astrohopper or as a result of any of the above acts will be rejected with the telescope returned to the neutral position. More information will be available during the briefing before the component.



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Project Round

Please refer to the [AstroChallenge 2025 Project Round Information Sheet](#) for the specific rules and requirements for the round.

Project Exhibition

- Each team is required to select **ONE** question. Teams from the same school must choose different questions. Failure to do so will result in a penalty.
- A penalty will be applied to late submissions or any subsequent submissions of missing deliverables.
- Teams will be given a strict window of 30 minutes to set up on the day of the Project Exhibition. The AC Organising Committee may impose a 20% penalty to the overall Project Round score to teams who fail to abide by this window without notice.
- The time limit for each presentation is set to **5 minutes**. All team members are expected to present a part of the poster presentation as well as the making of the project presentation. Thereafter, judges may ask questions for **around 10 minutes**.
- All team members must participate in all the presentation and Q&A sessions. Failure to do so will result in a penalty in their score.
- All teams (Whether they are participating in the Full Competition or Project Round only) will be graded based on the same rubrics and standards for the *Top Project* awards for both categories.
- The performance of teams participating in the Full Competition in this Round will also contribute to their overall performance in the Preliminaries.
- The instructions for the Project Exhibition may be amended with notice due to unexpected circumstances or other conditions imposed by, inter alia, the government, NUS, NTU, our venue sponsors and/or the AstroChallenge Organising Committee.

You are reminded of the seriousness of passing off any other person's work as your own. Citation is required whenever the work is non-original. Please refer to the Citation Guidelines in the [Project Round Information Sheet](#) for further instructions.



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Final Round

Duration: 2.5-3 hours (projected)

The **top five teams per category** (based on all preceding rounds) will take part in this round. Only 1 team from each school per category can qualify for the Final Round.

- Only 4 participants are allowed for each team. The reserve member is not allowed to participate unless a member of the team is absent and/or sick.
- In the event that 2 or more teams from a school qualify for the Final Round, only the top team from each school will participate in the Final Round. All other teams from the same school will not be considered for the finals.

Illustration: The rankings for AC are as follows

1. Lower Kent School Team 1
2. Lower Kent School Team 2
3. Upper Kent School Team 1
4. South Holland School Team 3
5. Upper Serangoon Institute Team 4
6. South Holland School Team 2
7. Upper Kent School Team 3
8. Lower Thomson School Team 1
9. Lim Chu Kang Institute Team 3

The Qualifications for the final round will be as follows:

1. Lower Kent School Team 1
2. Upper Kent School Team 1
3. South Holland School Team 3
4. Upper Serangoon Institute Team 4
5. Lower Thomson School Team 1

Lower Kent School Team 2 is not in the finals because Lower Kent School Team 1 is already in the finals and was ranked higher. South Holland School Team 2 is bumped up but since South Holland School Team 3 had already qualified, it is similarly not in the finals. So on and so forth.

The Final Round will be in the format of a gameshow with multiple components. Details will not be released as of now.



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Score Weighting for Preliminary Rounds

Round Name	Junior	Senior
Individual	30%	20%
Team	30%	20%
Observation	N/A	30%
Project	40%	30%
Total	100%	100%

Score Weighting for Grand Total (for both Juniors and Seniors)

Round Name	Weightage
Preliminaries	30%
Finals	70%
Total	100%

The round weightages for AstroChallenge 2025 are provided to serve as a strategic guide for participants. The AstroChallenge Organising Committee reserve the right to amend the weighting should it be decided necessary or expedient at any point in the competition, with or without prior notice.



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Appendix C: Memorandum from the Head Question Master

Dear Participants,

Welcome to AstroChallenge 2025, the 21st edition of AstroChallenge. We are Angeline and Wu Xiao, and we are the Head Question Masters of AstroChallenge 2025.

AstroChallenge has been an important part of our personal journeys, offering us an enriching experience that sparked our interest in astronomy, and in science as a whole. The breadth and depth of the contents is truly what separates AstroChallenge apart from other competitions, and we aim to provide you with a similarly comprehensive experience in the field of astronomy.

We are honoured that over the years, AstroChallenge has become an integral part of the astronomy community in Singapore. This year, we hope to extend our outreach to students from a more diverse backgrounds and provide a more accessible path for students to get into the field of astronomy, through our new initiative of an open project. We hope that schools who choose to sign up for AstroChallenge will have the opportunity to explore an area of astronomy in depth, and gain insights into the inquiry of astronomy as well as scientific communication from the experienced judges.

Astronomy is not a standalone subject, it is the scientific exploration of the cosmos. You will have the opportunity to apply many of the techniques you have learned in school, from formulating scientific models to analysing data using mathematical tools. Beyond testing your astronomy knowledge, we hope that the AstroChallenge experience will help you develop valuable skills such as problem-solving and teamwork, which will serve you well in your academic journey and beyond.

Whether this is your first AC or your sixth, we hope that all of you have a fun time solving (or attempting to solve) the questions in the various rounds and that you have a fruitful time learning about astronomy and bonding with fellow astronomy enthusiasts.

Best of luck,

Angeline Philo John Rajakumar (Ms.)

Wu Xiao (Mr.)

AstroChallenge 2025 Head Question Masters