



AstroChallenge 2021

To: Teachers-in-charge and Participants

Dear Sir/Mdm,

On behalf of the Organizing Committee, I would like to thank you for your keen interest in **AstroChallenge 2021**. The contents of this letter include important issues and rules to take note of:

1.) Competition Dates and Format

Day 0 – **29 May**, online only

Day 1 – **7 June**, 09:00, respective schools

Day 1.5 (Seniors only) – **8 June**, 18:00, Ecogarden at Science Centre

Day 2 – **12 June**, 09:00 (Juniors)/14:00 (Seniors), respective schools

For Day 0, there will **not** be any online live streaming. Instead, schools will be notified via email upon release of detailed administrative briefing materials on the **AstroChallenge website**. Participants are expected to peruse the materials before Day 1.

Day 1 and Day 2 will be conducted in your **respective schools**. It will be facilitated by a member of the AC Organizing Committee. **Day 1** will be a **pen and paper test**. **All participants** will be required to be present on Day 1. **Day 2** will be conducted over **Zoom** for **finalists only** (your team will require **one** personal computer with a video camera and microphone). There will be a live stream of Day 2 set up as well.

Please note that **only members of the Obs Team** can be present on **Day 1.5**. Also rest assured that Science Centre will be **closed to the public** during the Obs Round.

Please refer to **Appendix A** for the schedule of events and **Appendix B** for the map of Science Centre. Please note that the schedule may be subject to changes.

2.) Mode of Communication

Telegram will be used as the main mode of communication between participants and the AstroChallenge committee. AstroChallenge Main Channel will be set up to convey key information before and during the competition. Every school will also be paired with an AC Committee Member and added into a separate group. This is to facilitate communication between participants and the AC committee before and during the competition.

The link will be sent to registered participants through email.



AstroChallenge 2021

3.) *Payment*

The registration fee for each Junior or Senior team will be decreased to **\$60**. We will be accepting a few methods of payment. The recommended payment method is **PayNow** transaction. When you do PayNow transaction, select UEN number and put S98SS0058J (instead of the usual NRIC/mobile). After the transaction is done, do inform us by messaging the event treasurer:

Xu ZhiRong +65 8426 1393

that you have send the payment. We will then check if the payment is in.

Alternatively, you can pay directly to the treasurer's **PayLah** through the mobile number above. We also accept **Giro Deduction** or **direction bank fund transfer** via the following details:

MayBank

Bank code: 7302

Branch code: 018

Bank account number: 04181062002

National University of Singapore Astronomical Society (NUSAS)

Teachers-in-charge will have also received the invoice through email. This registration fee serves to defray the costs of the competition (e.g. prizes, certificates, organisation, and manpower). Please note that an **additional administrative fee of \$10 may be charged** if there is any change in team composition *after* the registration deadline.

4.) *Competition*

Please refer to **Appendix C** for the rules and regulations.

Please refer to **Appendix D** of the [Invitation Letter](#) uploaded on AstroChallenge website for the complete syllabus.

5.) *Project Round*

We the organizing team **strongly urge** you to read the [Project Round Infosheet](#) again before submission. Further instructions are as follows:

The video for the Project Round must be **submitted by Day 0 (29 May) by 1900**. You will **incur penalties** should we receive your submission late.

You may choose any of the below methods for submission:

1. Emailing us the video file; or
2. Uploading the video onto an online server and emailing us the link.



AstroChallenge 2021

Please note that in addition to your video, you are reminded to send **a transcript of your video** if it is not subtitled as well as **a list of all references in a word or pdf file**. If you do not submit the list of references, notwithstanding any credits within the video, it shall be presumed that you claim your entire video to be your original work.

Please also note that you are only allowed **one video** and it **should NOT exceed 1 GB in size**. If you submit more than one video, the Organizing Committee will take the latest submission as your video (with corresponding penalties if it is late). If you submit more than one video at the same time, the Organizing Committee will only pick one at random to grade.

A kind reminder also to ensure that **the video can be viewed**. If the video only becomes viewable after the deadline, the **same penalties for late submission apply**. **Dead links** or otherwise **unwatchable videos** will be deemed as **a non-submission**.

Should you choose any other method to submit the video, you are required to write in to us to discuss.

For the avoidance of doubt, the Organizing Committee would like to remind participants that your video submission should consist of **2 parts** (within the same video) as written in the **Project Round Infosheet** (Link above). **You are able to format and plan your video in whatever order as you wish**. Without going into details regarding any specific question, there will indeed be certain questions which are easier answered by going through the AstroMythBusters! segment before the actual content.

6.) *DAQ Round (For seniors only)*

The submission deadline for the DAQ round is on **Day 0 (29 May) by 1700**. The **deadline is strict**. Late submissions may not be entertained.

Each team is expected to work on this question **on their own** and you are reminded of the **need to credit all non-original sources**.

You are **required to zip all your deliverables into one zip folder for submission**.

You should **name your submission** in the following format:

[Full School Name]_[Team Number]_DAQ_Submission.zip.

For example: Lower Kent School_1_DAQ_Submission.zip

Failure to conform to the above instructions may result in your submission being rejected and being awarded 0 for this portion.

For a list of deliverables, refer to the [question paper](#).



AstroChallenge 2021

7.) 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. **Trace-Together token or app** for entry into venues.
- d. A **working Oral Thermometer** for temperature taking. You may **not** share thermometers.
- e. **Telescope and insect repellent** for participants in the Senior category on **8 June (Day 1.5)**. If you would like to loan a telescope from the AC Committee, do let your allocated AC Committee member know through Telegram **before 29 May**.
- f. **Completed Project** (Seniors and Juniors) and **DAQ** (Seniors only) on **29 May**.

8.) Safe management measures

- a. Please note that failure to comply with any of the following SMMs or any relevant instruction within this information letter before, during or after the competition may result in you being **barred or disqualified from participating** in the competition.
- b. **Do not come if you are feeling unwell**. We will be conducting temperature checks before the competition.
- c. It is **mandatory to keep your masks on at all times**. Unless otherwise instructed, masks can only be removed if you are hydrating yourself. Masks should adhere to guidelines set by the Singapore Government.
- d. Please observe **safe physical distancing of 1m** between each individual and do not interact with other teams.
- e. For Day 1.5, you are required to **keep to your allocated area**.

9.) COVID-19 Contingency Plans

The committee is closely monitoring the COVID-19 situation in line with national SMMs and MOE's advisories. Given that the heightened measures are slated to end 30 May, we can hope to **proceed as planned**.

However, if there is an extension to the heightened measures, the **following measures may be taken** (non-exhaustive):

1. Teachers to carry out the duties of AC facilitators
2. Day 1 and/or 2 to be held online



AstroChallenge 2021

3. Day 1.5 to be cancelled

Please look out for a **confirmation on Day 0**. We seek your understanding that the situation is volatile and last-minute changes may be unavoidable. Once again, as far as possible we hope to have a physical AC to preserve the integrity of the competition, if the situation allows for it.

More details and updates on the aforementioned events will be provided on AstroChallenge website at <https://www.astrochallenge.org>.

Please contact us at astrochallenge@gmail.com if you have further enquiries. We look forward to seeing you at AstroChallenge 2021. Thank you.

Yours sincerely,

Claudia Liauw (Ms.)
Chairperson
AstroChallenge 2021 Committee



AstroChallenge 2021

Appendix A – Schedule of Events for AstroChallenge

Day 0: 29 May 2021 – Online only

Administrative guides and recordings will be uploaded on the AstroChallenge website. An email will be sent out to schools to notify participants and schools of the release of materials on Day 0. There will be no online livestreaming.

Day 1: 7 June 2021 – Respective schools

0900 – 0930	Registration/Attendance Checks
0930 – 1000	Opening Address
1000 – 1200	Individual Round
1200 – 1330	Lunch
1330 – 1400	Briefing and Buffer for DRQ
1400 – 1600	Team Round
1600 – 1630	Briefing for Observation Round (Senior Category)*
1630 – 1830	Observation Round – Theory Component (Senior Category)

* The day will end at 1600 for Students taking part in Junior Category

Day 1.5: 8 June 2021 – Ecogarden at Science Centre

1800 – 1930	Registration*
1930 – 2230	Observation Round – Practical Component (Senior Category)

* Reporting timings will be staggered. More information will be disseminated through Telegram closer to the day.

Day 2: 12 June 2021 – Respective schools

0900 – 0915	Registration/Attendance Checks (Junior Category)
0915 – 1145	Finals 1 (Junior Category)
1145 – 1200	Juniors Prize Presentation
1200 – 1400	Lunch (including Post-Mortem starting from 1300)
1400 – 1415	Registration/Attendance Checks (Senior Category)
1415 – 1645	Finals 2 (Senior Category)
1645 – 1700	Seniors Prize Presentation

NB: Day 2 is by invite only. The Organizers will attempt to setup a livestream of the Finals



AstroChallenge 2021

Appendix B – Map of Competition Venue

Address: 15 Science Centre Road, Singapore 609081



<https://www.science.edu.sg/visit-us/visit-planner>



AstroChallenge 2021

Appendix C – Rules and Regulations for AstroChallenge

The organizing committee reserves the right to amend any of the rules contained herein. Participants will be notified of the relevant changes.

General rules

- Handheld communication devices or devices with storage and display capabilities (other than calculators) are not to be used during all the quiz rounds.
- Only scientific calculators found in SEAB’s approved list of calculators are permitted. No other calculators will be allowed in this competition.
- Any team caught cheating will be subjected to disciplinary/remedial action, including immediate disqualification. The teacher-in-charge and their respective school will be notified in the event of cheating.
- The tabulation of total points is final. No further correspondence will be entertained.
- Top 50% of Individual Round, Team Round, Observation, and Project scores will be released. Full release of results will only be made upon the teacher-in-charge’s request, and each school may only view its own students’ scores.

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 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.

- There will be 5/10 questions in the Senior/Junior Individual Round which will exclusively focus on testing astronomical basics and recall of fundamental astronomy facts.
- 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.



AstroChallenge 2021

- The Junior Category Individual Round paper will not be the same as the Senior Category Individual Round paper.

Team Round

Duration: 2 hours

- Most of the questions are on applications in astronomy.
- The team reserve cannot take part, unless one member of the team is absent and/or unwell. Only 4 participants per team may take part in the Team Round.
- The points awarded to the team for this round is the total sum of marks awarded across all questions, up to a maximum of 80 marks.
- There will be a total of 5 structured questions. Each structured question will contain around 20 marks, up to a total of 100 marks.
- The first structured question will contain short open-ended questions that focus on testing factual understanding and recall of astronomical basics.
- In addition, For the Seniors, 1 structured question (the DAQ) has been released on the website, and will be due for submission by 1700 on Day 0 (29 May). The deadline is strict. For further instructions such as how to format the submission etc. refer above.
- Thus, the Junior Team Round Paper will contain 5 structured questions. The Senior Team Round Paper will contain 4 structured questions – the DAQ will replace one of the questions.
- 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** materials. Participants are also allowed to pass their cheat sheets between team members during the round.

Observation Round (Senior Category only)

Relative Weightages:

Round Name	Weightage
Theoretical Observation	40%
Practical Observation	60%



AstroChallenge 2021

Duration:

Theory: 2-3 hours

Practical: as long as it takes until not later than 2230

Venues:

Theory – Individual Schools

Practical – Science Centre Singapore (see Appendix B)

- This is an inter-school round.
- Each school may send **only 4 people** to participate in this round. The school can choose these **4** people out of all its participating teams. The score obtained by these 4 people will be the observation score for all teams for that school.
- **The same 4 persons** who appeared for the Theory Component must present themselves for the Practical Component. There will be no changing of members.
- There are two components for Observation Round, namely the Theory and Practical component.

Theory Component

- The Theory Component will be held after the Team Round. This comprises a written test and the use of stargazing software and/or indoor practical tests.
- The Theory Component shall be **closed book**. You may not bring in any material for the test to refer to. Doing so will result in your disqualification.
- The stargazing software that may be used in the theoretical observation round is Stellarium (<http://www.stellarium.org/>). The question may involve finding deep sky objects or pointing out particular stars and constellations (analogous to practical observation round).
- Participants are highly recommended to familiarize themselves with the program prior to the competition, and take note of the following additional settings:
 - Unless otherwise stated, time zone and location are set to those of Singapore.
 - Time will be paused.
 - What will be shown: stars, planets and deep sky objects (subject to sky condition settings), the ground.
 - What will NOT be shown: labels for celestial objects, constellation lines, celestial coordinates grid.
 - Only keyboard navigation – directional arrow keys, PgUp & PgDown to zoom – is allowed.
 - Unless otherwise stated, viewing options will be standardized as follows:
 - Atmosphere: On.



AstroChallenge 2021

- Light pollution: 3.
- Labels and Markers: All off.
- Projection: Stereographic.
- If tested, the telescope and miscellaneous settings in the Oculars plugin will be revealed on the day itself. If the Oculars plugin is not used, participants may switch between Equatorial and Azimuthal Mount mode as they deem fit.
- For further information, please see our website for a briefing about the Observation Round closer to the date.

Practical Component

- The Practical Component of the observation round is held on a separate day.
- Usually, we would allow other team members and visitors from schools to be silent observers for the practical component upon prior written request. However, due to the circumstances this year, we would be unable to allow any other persons to be present at the venue except for the 4 persons nominated for the observation round.
- Participants may bring along **any reference materials, subjected to approval.** These materials must be submitted for checking to the quizmasters beforehand for review.
- Only **1 person** from each school's Observation Team is allowed to proceed with setting up the telescope. This person will be **randomly selected** from each school's Observation Team.
- Only telescope set-ups not deemed to be a danger to the public by the AC 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. Members must remain **a minimum of 1 meter apart** from each other **at all times.**
- Teams are to keep to their allocated areas.
- Participants are expected to complete their observation log sheets (provided). They will also be tested on their telescope handling and alignment skills. Judges will verify each object found by the team.
- GOTO-enabled mounts/scopes and any form of computerized 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 organizers, judges, NTU and 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 bad weather, the organizing committee reserves the right to call off or replace the round.



AstroChallenge 2021

- For the avoidance of doubt, the Organizing Committee cannot be held liable for the weather or other such frustrating events beyond their control.

Project Round

Please refer to the [AstroChallenge 2021 Project Round Information Sheet](#) for Entry Rules and Regulations. There are further instructions above at point number 5.

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 take part.
- In the event that 2 or more teams from a school qualify for the Final Round, only the top team will participate in the Final Round.

Round 1: Practical Jeopardy Round

- Each member of the team is to select a name on the screen. The selected question will then be shown. Each member is expected to answer questions without help from the other members.
- Questions in this round largely revolve around practical astronomy.
- Each question is worth 20 points. The full score in this round will be 80 points.

Round 2: Game Round

- The Game Round will comprise of 15 questions done via the Kahoot format. All members will individually take part in this round. Their scores will then be summed up at the end of the round to form the team score.
- The 100% in this round will be rebased to the top scoring team's score.

Round 3: Theory Jeopardy Round

- Each member of the team is to select a category, and then answer questions without help from the other members.
- Questions in this round largely revolve around theoretical astronomy.
- Each question is worth 20 points. The full score in this round will be 80 points.



AstroChallenge 2021

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	For Both Categories
Preliminary	40%
Practical Jeopardy	20%
Game (Kahoot)	20%
Theoretical Jeopardy	20%
Total	100%

The round weightages for AstroChallenge 2021 are provided to serve as a strategic guide for participants. The organizers reserve the right to amend the weighting pursuant to its discretion.