

AstroChallenge Observation Round

Basic rules

- This is a practical round
 - Ends at 10 PM
 - You may bring any reference materials, subject to approval
 - Essentially an “open-universe” exam
- If weather/logistics prove unsuitable
 - QMs may call for a theory paper if bad weather persists
 - Theory paper may be interrupted at any point in time if the weather improves.

Reference Materials

- What will NOT be approved
 - Extra people (includes any form of contact)
 - Digital setting circles
- What will be approved (generally)
 - Observation Plans
 - Finder Charts
 - Star Atlases
- **All material** must be submitted beforehand for approval

Reference Materials

- Stellarium and other simulation software IS permitted*
- *If the Theory Paper is invoked, only printed/written material will be allowed, and only for certain components
- Reference materials are only permitted in Part III and IV of the Ob Round.
- QMs reserve the right to declare other materials as illegal without prior notice

Why this change?

- We want to focus on your practical/hands-on skills.
- Knowing the night sky is far superior to any references.
 - Clouds wait for no one
 - Speed is of the essence!
- Reference materials are **no substitute for experience.**

Scoring

- Part I: Telescope Setup (10%, all-weather)
- Part II: Boresighting (10%, all-weather)
- Part III: Thematic Objects (30%)
- Part IV: Free For All (FFA) Category (50%)

- Should bad weather intrude halfway, the theory paper will be weighted appropriately with the remaining 80%

Part I: Telescope Setup

- You'll have to setup and align your telescope finder properly.
 - When you are ready, inform the QM and he/she will check alignment.
 - QM will sign and comment on the mark sheet.
 - This makes up 10% of the Ob Round

Part II: Boresighting

- At a specific preannounced time, each individual in the team will have to boresight a target
 - You'll attempt to centre an object in the eyepiece field of view without the aid of a finder
 - All teams will start at the same time
- Each individual will have 2 attempts. After each attempt, the QM will look in the eyepiece first, followed by the student

Part II: Boresighting

- If the object is not in the field of view after the first attempt, the student may use the finder in the second attempt.
- In total, this comprises another 10% of the Ob Round.
- Each team may not proceed to Parts III and IV until all its members have cleared this round.

Part III: Thematic Objects

- A list of 10 objects/object descriptions (and your observation log sheets) will be given to you after the completion of Part II. Each object is worth 3% when found
- Upon finding this object, QM will doublecheck and countersign the list
- Reference materials may be used from this point onwards.

Part IV: FFA Round

- Teams may find any object that they desire.
 - Show the object and note it in your observation log;
QM will verify and countersign
 - To prevent teams from lucking out on objects, teams are expected to know the object's name
 - QMs may also compare the image to a sky atlas/your observation plan
- Only countersigned objects will gain a score
- Objects in Part III may not be used in Part IV
- Part III may be done concurrently with Part IV

FFA Round Scoring

$P = \text{Object Base Points} \times \text{Rarity Multiplier}$

- There is no total point cap!
- At the end of the round, points will be tallied and all scores in the FFA Round will be expressed as a fraction of the top scorer.

Object Base Points

- Base points depend on object type:
 - 20 points for planets/the Moon/comets
 - 20 points for galaxies
 - 15 points for globular clusters
 - 12 points for nebulae/PNs
 - 10 points for open clusters
 - 5 points for double/special stars
 - You need to justify 'specialness' e.g. white dwarf etc.
 - No naked eye stars will be given credit (unless it is a double star that is split by the scope)

Rarity Multiplier

Rarer objects will score more points.

- $\sqrt{\text{Total Teams} - \text{Teams Found} + 1}$
 - rounded to 1 d.p.
 - If everyone finds object X, the multiplier is 1.
 - If only 1 team of 7 finds object X, the multiplier = $\text{sqrt}(7) \approx 2.6$
- Intent: Reward prepared teams that find more unconventional targets

Other notes

- Objects must be visible with the naked eye through the telescope (averted vision/slight tapping allowed)
- There's a cap of 5 objects from any specific galaxy cluster.
- Head QM decision is final