

Event Proposal: Ad Astra Abyssoque

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1. Overview

Ad Astra Abyssoque (*To the Stars and the Abyss*) [1] is a two-round team-based competitive event designed to challenge participants' conceptual reasoning, strategy, and creative problem-solving abilities through a physics-themed barter system. The event blends problem solving with resource management, encouraging participants to trade conceptual tools (such as optical, mechanics, or thermodynamic elements) to reach their final objective.

Genre: A strategic, gamified puzzle event with conceptual physics problem-solving.

2. Event Structure

2.1 The Hexenzirkel [1] Puzzle (Prelims)

Participants will solve a physics-themed crossword puzzle designed to test their understanding across key domains such as mechanics, optics, thermodynamics, electromagnetism, and modern physics.

The clues will range from direct definitions and formula-based hints to conceptual challenges and real-world applications. Teams must think critically, recall fundamentals, and work collaboratively to complete the puzzle within the time limit.

- **Duration:** 15-20 minutes total
- **Team:** Max 3 person per team

- **Focus Areas:** Mechanics, Optics, Thermodynamics, Electricity & Magnetism
- **Format:** Paper and Pen based conceptual crossword solving

2.2 PADESTAE (Finals)

In PADESTAE (Physics Acquisition & Distribution of Energy, Systems, Thermo, and Analysis Exchange), participants will solve conceptual physics challenges at various stations to earn theoretical resources representing key areas of physics (e.g., optics, mechanics, and thermodynamics). These resources may be traded among teams to optimize their position to solve the final grand challenge.

- **Duration:** 2hrs total
- **Participants:** Top 6 teams from Prelims (2 Christite + 4 External)
- **Focus Areas:** Mechanics, Optics, Thermodynamics, Electricity & Magnetism
- **Format:** Interactive, conceptual problem-solving with resource exchange mechanics
- **Objective:** Accumulate and wisely trade resources to solve the final challenge most efficiently

2.2.1 Flow of the Game

- The three game stations will be open for the entire event. Spiral Abyss (Mora Earning), Mora Exchange (Materials Shop), Wishing Well (Theme Provider). [1]

- Teams solve random physics questions from the question pool of different difficulties at the Spiral Abyss to earn Mora(Currency - Gold(GC),Silver(SC),Bronze(BC) coins for Hard, Medium and Easy modes respectively).
- $1 \text{ GC} = 10 \text{ SC}$ and $1 \text{ SC} = 10 \text{ BC}$
- Teams can opt to pay 3 SC at medium difficulty and 3 BC at easy difficulty to get a hint card (5 hints option) which can only be used for the difficulty you bought for. The hard difficulty will not be given an option for hints.
- Teams will use Mora at the Mora Exchange to buy the resources (material tokens)
- Teams can sell the extra or unwanted materials at 50% reduction of the actual cost.
- Teams can also buy Fates [1] (Discount Cards - Valid for 3 use) for 10-75% (chosen at random) at a price of 1 GC
- Teams may trade resources strategically with others at any time.
- Teams will have to go to the Wishing Well to get their Physics themes at a cost of 1 SC (can be rerolled multiple times with 5 BC).
- Final Challenge requires assembling a solution blueprint or diagram on the provided paper using earned or traded resources and on the theme obtained from Wishing Well.
- Teams can attempt more than 1 Theme (Which has to be purchased again using 1 SC at Wishing Well) within the time limit.

2.2.2 Scoring

Teams will earn scores based on the following:

- Submission of Theme Solution = 1000pts
- Number of resources used per solution (n), Points awarded = $(10 - n) \times 50$ pts
- Leftover Mora:
 - 1 GC = 100pts
 - 1 SC = 10pts
 - 1 BC = 1pt

3. Event Rules

1. Each team must consist of a maximum of 3 participants. Teams with fewer members are allowed but will not receive any advantage.
2. Teams must report to the venue 10 minutes before the scheduled start time. Late arrivals may be disqualified or start with a time penalty.
3. All communication during the event must be limited to team members. Teams found communicating with other teams during active rounds may face penalties.
4. Use of mobile phones, calculators, or any reference material is strictly prohibited during the event unless explicitly allowed by organizers.
5. All Mora transactions (buying/selling/trading) must be done through the official counters only. Unauthorized or verbal trades will not be valid.

6. Hint cards can only be used at the Spiral Abyss station and are non-transferable.
7. Fates (discount cards) can only be used three times and must be shown before completing the relevant purchase.
8. The decision of the event organizers and station masters is final and binding in all matters, including scoring, hint disputes, and challenge validations.
9. In case of disputes or unclear scenarios, teams may file a protest by submitting a Mora penalty of 1 GC to open a discussion. Refunds are non-guaranteed.
10. Participants must maintain academic decorum and sportsmanlike behavior throughout the event. Any form of misconduct may lead to immediate disqualification.
11. Resource and theme tokens must be submitted at the end of the event. Points will be calculated based on final submissions only.
12. Multiple attempts of the Final Challenge are permitted within the time limit, but each new attempt requires a new theme purchase from the Wishing Well.
13. Ties will be resolved based on:
 - (a) Highest number of correctly used unique resources.
 - (b) Least Mora spent.
 - (c) Earliest final submission.

4. Evaluation Criteria

Teams will be assessed based on the following:

- Effectiveness and logic of final solution
- Creativity in trading strategy
- Conceptual accuracy and application of physics
- Team collaboration and problem-solving approach

5. Logistical Requirements

- Printed resource cards (Material tokens, Mora, Themes)
- Stationary: markers, A4 sheets
- Timer for monitoring round durations

Item Description	Estimated Cost (INR)
Printed resource cards (Material tokens, Mora, Themes)	300
Stationary (markers, sheets)	200
Total Estimated Budget	500 INR

6. Conclusion

Ad Astra Abyssoque [1] offers an interactive, imaginative, and intellectually stimulating experience for participants, encouraging both critical thinking and strategic reasoning through physics. Blending academic rigor with creative problem solving and inspired by contracts and exchange themes, this event promises to engage students in a unique and memorable challenge.

References

- [1] miHoYo. *Genshin Impact*. HoYoverse, 2020. <https://genshin.hoyoverse.com/en>
- [2] Deterding, S., Dixon, D., Khaled, R., & Nacke, L. (2011). *From Game Design Elements to Gamefulness: Defining “Gamification”*. Proceedings of the 15th International Academic MindTrek Conference. <https://doi.org/10.1145/2181037.2181040>
- [3] Foster, T. M. (2008). *Games and Simulations in Physics Education*. The Physics Teacher, 46(6), 358. <https://doi.org/10.1119/1.2977477>
- [4] Young, M. F., Slota, S., Cutter, A. B., et al. (2009). *Our Princess Is in Another Castle: A Review of Trends in Serious Gaming for Education*. Review of Educational Research, 78(1), 235–267. <https://doi.org/10.3102/0034654307313390>