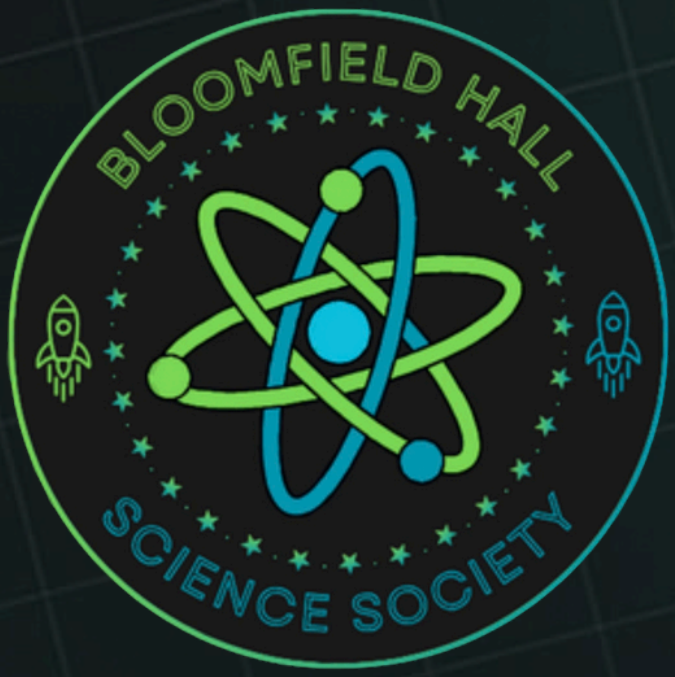
BLOOMFIELD HALL SCIENCE SOCIETY PRESENTS



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DRIVEN BY STUDENTS, DEFINED BY SCIENCE

STUDY GUIDE

BINARY FISSION

BINARY FISSION



Binary Fission returns with three new rounds. This year your team will work out the hidden rule inside a machine, bid on questions it can only partly see, and defend a company through a
series of cyber attacks. The category is designed for coders and non-coders alike and does not reward memorized syntax or prior technical experience. It tests how your team reasons, spots patterns and makes decisions when time and resources are limited.

Round 1:
Introducing the Black Box, consisting of multiple machines. Every machine hides a rule. Type in an input and it gives back an output, but the formula inside stays hidden. Your team's job is to study the inputs and outputs, work out the rule the machine is applying, and write it down before time runs out. Inputs are limited and each one is followed by a cooldown, so every input should test an idea. The round rewards careful experimenting and logical deduction rather than programming knowledge.

Round 2:
In this round, knowledge has a price and your team decides what to pay. Every team starts with 500 credits and bids for the right to answer questions it cannot see in full. The less a team knows about a question when it bids, the more a correct answer can pay. Winning means knowing your team's strengths and managing your credits from the first bid to the last, as well as strategically spending your points on powerups in between rounds. A confident bid on the right topic can pay well, and a careless one can put your team into debt.

Round 3:
The final round puts your team in charge of security for a company under attack. In a browser-based simulation, each team starts with a set amount of virtual money and invests it across defensive systems, monitoring infrastructure and other protective measures. Then the attacks begin. As each incident unfolds, your team has to identify the threat and respond with the right decisions and investments. Funds are limited, so every purchase means giving up something else, and success depends on both cyber security knowledge and careful resource management.

Topics:
- Data and Representation
- Hardware
- Software
- Networks and the Web
- Logic
- Problem Solving
- Programming basics
- C++
- Data and Systems
- Common cyber attacks:
- Cyber attack Prevention