

Black Hole Explorer Board Game

Suggestions and Ideas for Running the Game in a Group Setting

1. General Ideas

The game is made to be fun, flexible, and educational. If a rule does not work with your group or environment, change it. House rules are fine, as long as they enhance fun and learning.

The game can be played many ways, i.e. with just a single board running, or in a group event, with 2 to 10 boards going at once. The current stated 'objective' to the game is to go close to the black hole, launch up to 3 probes, successfully collect data, get away from the black hole, and then attempt to win the Nobel Prize.

However, you can tailor your event objectives; for example:

- People at a given board can compete to see what is the least expensive ship that can get in and out with at least one successful Probe Result; works with one or more boards
- Everyone at a given board works together to see how many total Probe Results are earned by all the ships, combined. This is compared to the number of Probe Results earned by other boards before 'time' is called; works with two or more boards.
- Everyone in the room, regardless of board, works together to see how many Probe Results the whole room can get before 'time' is called.

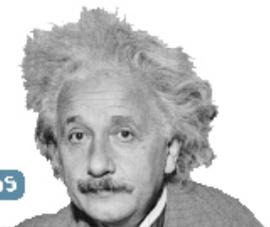
For different objectives, you may need to define if just getting a Probe Result is good enough, or if people have to successfully launch their probe and still get their ship away from the Black Hole successfully.

2. Set Up/Ship Design Phase

There are two stages to this game – a design phase and an exploration phase. In the design phase, described below, players create the ships they will use to explore the black hole. When running this game, educators may wish to skip this phase, use pre-made ships, and move directly on to the exploration of the black hole itself.

The game is currently structured so that each person rolls a die and sees how much money they have to design a spacecraft. However, the number of ships in a game does not need to match the number of players. Some players will start with a lot of money, and others will not. Therefore, the game is played with ships that have made different trade offs on resources. This adds both interest and learning about compromises in mission design due to budget considerations.

- Two or more players might choose to pool their resources and create one very good ship, which they fly as a team.
- The entire group at one board might choose to pool their resources and make as many very good ships as they can, with the money left over being given to one not so good ship. In this case, players would not be competing against one another, but all working together for some other pre-determined objective (as above)



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In a group setting the ship design phase of the game may be either too time-consuming or too confusing. One option is to use 'pre-made' ships. These are ships that have already chosen their ship design based on budget. These pre-made, filled out ship forms could be passed out to participants instead of the blank forms, and then game play would start immediately.

A standard set of interesting pre-made ships is available on the "Inside Einstein's Universe" web page. Click on Resources → Educational Resources → Presentations for Informal Educators → Black Hole Explorer.

Note: Having to roll a die at the beginning of the game encourages collaboration, because those with small budgets are allowed to work together. Working together can also happen with pre-made ships by having people play in teams, two people to a ship, for example.

Collaboration can also speed game play; six people at a board flying only three ships, for example.

3. Game Play/Optional Rules/Variations

The game currently states that when you launch a probe:

- You must be in the danger zone
- You only have a 100% chance of succeeding if you are on the very lowest level of the danger zone.

This rule can be confusing in a large group. One variation is to say that everyone must be on the lowest level in order to launch a probe, but all probes then succeed.

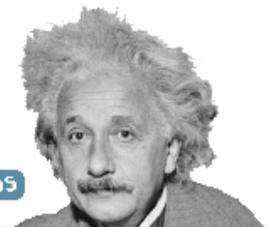
Many players really like a variation that allows anyone who rolls doubles to take another turn.

4. Moderator Break In/Additional Learning

In a group event, part of the fun is interacting with the whole group in one way or another. A scenario to achieve this can include:

- Having the Moderator ask for 'firsts'; "Has anyone launched a probe yet?", "Call out if you are the first person to fall into the Black Hole" etc.
- Having the Moderator control the nature of 'Probe Results.' This is probably the best way both to enhance learning, and to increase the fun and interactivity of the event. In this case, the Moderator holds an expanded set of 'Probe Result' cards, and to get results, players have to go the 'front' of the room and get a card. The player then reads their result out loud to the group. At that point, the Moderator has the option to offer an additional image, factoid, or visualization that supports that Probe result. Once this information is presented, play resumes until the next successful probe launch.

A "Probe Result Presentation" with additional materials to support each Probe Result is available on the "Inside Einstein's Universe" web site. A set of "Group Probe Result Cards" accompanies this presentation – print out one copy and use it instead of having individual probe result cards at each game board.



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In larger groups (25+) with many boards running at the same time, interrupting everybody's game to read each new result will lead to chaos. It is recommended that probe results be presented press conference-style:

- Set a time limit on mission exploration (game-playing) and allow all groups to play for the full period with minimal interruption. Facilitator(s) can roam among boards to moderate and answer questions.
- At the end of the mission exploration period, gather everyone together and hold a press conference.
- Using the full probe results presentation (or a subset thereof), go through the slides one-by-one, asking representatives from the different groups/tables to read each probe result aloud in order. Between each "press release," show the accompanying slide/visualization and then ask for the next result from a different group/table. (That is, make sure every board gets to share one of its probe results.)
- If a board does not have a new result, ask the representative to share "the most exciting thing that happened during the game."

Additional tips for playing in large groups:

- Competition between odd- and even-numbered tables/boards: Who can get the most probe results?
- Start everyone in the Warning Zone to bypass the longer and more time-consuming orbits

It is up to you how many probe results you include in the "press conference," but make sure that the cards in each probe result pile matches the presentation you are going to give. When this format was piloted in a group of ~110 players, presenting a set of 16 results took about 45 minutes.

5. Additional Comments

Digesting the rules and designing a ship can take anywhere from 15 to 30 minutes. After that, minimum game time is probably an additional hour to get most ships the chance to at least launch one probe. If you add in the additional 'Probe Result Presentation' you'll need more time, probably 3-5 minutes per probe result, to have the participant come forward, get a card, read the card to the group, and then for you to present the additional factoid with image/animation.

The game is designed so that no one needs to sit idly by if his or her ship has fallen into the black hole, or exploded. If a ship is destroyed, have the participant role for a new budget, or draw a new pre-made ship and start right back in. The only constraint might be that no one can get a new ship if someone has already made it out at back 'home'. Otherwise the game won't end.

The probe results in the expanded presentation are posted as a Microsoft Word document, so that you can customize the results depending on the level of your expected audience. Again, make sure that the cards match the presentation you are going to give!

The Universe Education Forum is eager to hear about the ways in which you use this game with your audience. Please feel free to contact us at einstein2005@cfa.harvard.edu.

