

## QUESTIONS FOR BLACK HOLES THAT EAT STARS

To download the PDF, use your browser's [download](#) or [save as](#) function.



# JACKSON'S QUESTIONS

## BLACK HOLES THAT EAT STARS

(AS ASKED BY JACKSON)



1. A clerk in a Switzerland patent office saw a painter fall off of a scaffolding. What was the clerk's strange thought?
2. Who was the clerk?
3. What did his thought mean about how the force of gravity is related to the acceleration due to gravity?

Albert Einstein had a thought experiment in which he compared two rocket ships. Ship 1 is sitting still on earth and ship 2 is traveling through empty space accelerating upward at 9.8 meters per second per second. There are two holes in the ship on the right and the left at exactly the same distance from the floor. A horizontal beam of light enters a hole on both ships on the left side.

4. For ship 2 will the beam of light go through the hole on the right side of the ship, or will it hit the wall at a point that is higher or lower than the hole?
5. For ship 1, what would you and scientists before Einstein predict for the beam of light? Through the hole, lower or higher.

## QUESTIONS FOR BLACK HOLES THAT EAT STARS

6. Assume Einstein's idea that experiencing the force of gravity or accelerating at a rate equal to the acceleration due to gravity are equivalent. For Ship 1 would the beam of light go through the hole, or hit the wall lower or higher?
7. Can you explain your reason for answer 6?
8. What do the answers to questions 6 and 7 say about whether or not light is attracted by the force of gravity?
9. Could a cosmic object be so massive that the force of gravity due to that object would be so strong that light could never escape it?
10. What would you call the object described in question 9?
11. How would such an object appear if you could see it?
12. How did a star get spaghettified?
13. What happened to the star?
14. Could you survive if you were pulled into a black hole?

## QUESTIONS FOR BLACK HOLES THAT EAT STARS

15. Where is the biggest black hole in the Milky Way?
16. Where is the best place to look for black holes?
17. What is the size of the biggest black hole?
18. What are gravitational waves?
19. Have gravitational waves ever been observed? When?
20. What event can cause gravitational waves?

# THE STARDUST MYSTERY PROJECT

THE STARDUST MYSTERY WEBSITE

<https://TheStardustMystery.com>  
[Educator Page with Science Topics](#)

STARDUST MYSTERY YouTube channel

<https://www.youtube.com/channel/UCa5CQnZA6StFXXvEs418DKg>

Science Videos

Game Trailers

How-To Videos

[Animated Coronavirus Story for Kids 1: How Grandpa got COVID-19](#)

[Explaining COVID-19 mRNA vaccines: An Animated Story for Kids](#)

[Explaining Our Body's Factories: An Animated Story for Kids](#)

THE STARDUST MYSTERY VIDEO GAMES

<https://Store.SteamPowered.com>

[MissionKT](#)

[Building the Universe](#)

ILLUSTRATED SCIENCE ADVENTURE BOOKS

*THE STARDUST MYSTERY* is on [Amazon](#) and [Barnes & Noble](#)

*THE RACE TO THE BIG BANG* is on [Amazon](#) and [Barnes & Noble](#)

NATIONAL SCIENCE FOUNDATION AWARD 1738291

[https://www.nsf.gov/awardsearch/showAward?AWD\\_ID=1738291&HistoricalAwards=false](https://www.nsf.gov/awardsearch/showAward?AWD_ID=1738291&HistoricalAwards=false)

