

## BLACK HOLES

Go to the agenda page on the class website and click on **The Truth About Black Holes** on today's date to start. (<http://amazing-space.stsci.edu/resources/explorations/blackholes/lesson>)

1. Go to the "**Is a Black Hole Really a Hole?**" page, scroll your mouse over the black hole image on the left-hand side of the screen and write down some notes about:

A) Jets of Gas

B) Accretion Disk

C) Event Horizon

2. Click the *right arrow* button found at the top right corner of the screen. You will come to a page that has a list of options. Click on "**See a Black Hole in Action**" – describe what you see.

3. Go back and click on "**What Types of Black Holes Are There?**" Read about the three types of black holes and describe each one in your own words:

A) Stellar Black Holes

B) Supermassive Black Holes

C) Miniature Black Holes

4. Now go on a voyage to a black hole! As you go, take a few notes on this paper. You should have at least 5 notes about how black holes form and what could happen if we tried to launch a ship into one.

To start, go back to the class website and click on the "**Gravity's Relentless Pull**" link ([http://hubblesite.org/explore\\_astronomy/black\\_holes/home.html](http://hubblesite.org/explore_astronomy/black_holes/home.html)). Click on the "**Journey to a Black Hole**" button. Play around with the viewer (be sure to try the different viewing methods (X-Ray, Visible Light, Radio Waves)). How many black holes did you find with each method?

Click on the "**Begin Your Voyage**" button on the bottom right corner of the screen. Choose your destination and follow the instructions on the screens.

Click on the "**Up Close and Personal**" link near the top of the page.

Click on “**Show Questions and Experiments**” link on the bottom right of the page.

NOTES:

A)

B)

C)

D)

E)

5. Read the statements below, and using what you have learned about black holes, decide if the statement is a fact or a myth, and then check the appropriate box.

	<b>Myth</b>	<b>Fact</b>
The volume of a black hole is huge.		
Black holes have no mass.		
A rotating black hole may lie at the center of our galaxy.		
Gravity bends light.		
Our sun will eventually become a black hole.		
Light cannot escape from a black hole.		
Black holes will pull in everything in the universe and eventually destroy it.		
NASA sent a space probe into a black hole.		
The gravity of a black hole is felt everywhere.		
The gravity that your body creates is felt everywhere.		

6. Now go back to the “**Is a Black Hole Really a Hole?**” page. Now click on the section called “**What Do You Know About Black Holes?**” Check your answers to the above chart by taking the quiz. Correct any wrong answers and explain why they were wrong in the space below.

7. Summary- answer these questions with a paragraph on binder paper:

- What does a black hole look like?
- Are there any pictures of a black hole? If not, why not?
- Could a black hole suck up all the matter in the universe? Why? Why not?