



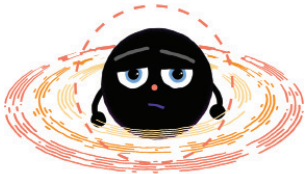
May 5-9 is Black Hole Week at NASA. The special week was started in 2019 to celebrate these mysterious cosmic objects. Let’s learn more about black holes!

What is a black hole?

A **basic** black hole isn’t really a hole. Instead, it is a **sphere** with a lot of **mass**, or matter that is contained within it. It spins, and everything inside a boundary called the **event horizon** falls inward because of its very strong gravity. This is sometimes called the “point of no return.”

The **singularity** is the center portion of a black hole, where all the mass is concentrated. There are also **fancy** black holes. Gas, dust and other objects, such as stars, can get too close to black holes and start to spin around the black hole. This region is called an **accretion disk**. Sometimes these objects get too close and heat up to form light. These brilliant jets of light can sometimes be seen from Earth. Black holes can even merge with other black holes to make a new, bigger black hole. These are called **supermassive** black holes.

BLACK
HOLE
WEEK



The biggest black hole that scientists have observed is TON 618, with about 66 million times the mass of our sun. The largest black holes are at the centers of galaxies. The black hole at the center of our galaxy, the Milky Way, is called Sagittarius A*. It is 4 million times the mass of our sun.

How black holes are found

Even light can’t escape the gravity of black holes, so scientists observe them by noting their effects on the objects around them. They might be surrounded by rings of gas and dust, or stars may orbit around them in a particular way. Black holes also bend light from other distant objects.

Gravity in an accretion disk heats up debris to millions of degrees and compresses it, producing high levels of **radiation** — so high, it would be deadly to human beings. Black holes also affect time in a weird way. If you were near one, time would seem to pass much faster.

When objects get close to the event horizon, they start to stretch out and also be compressed. Think of a spaghetti noodle. Fortunately, the closest black hole is 3,000 light-years away, so your chances of becoming **spaghettified** are very slim!



Try ‘n’ Find

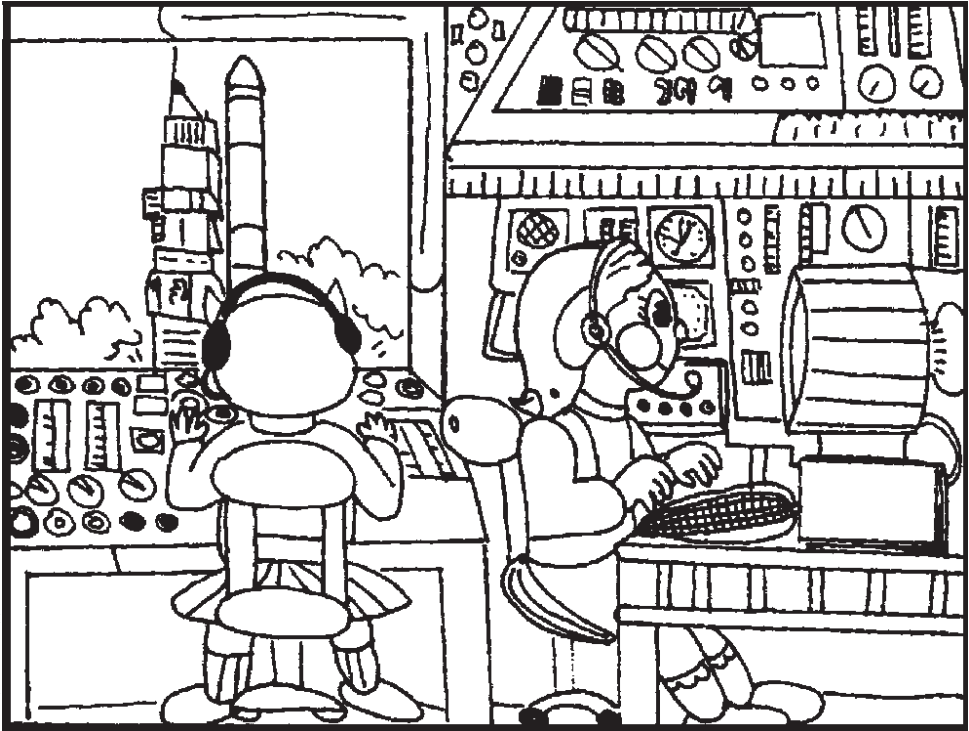
Words that remind us of black holes are hidden in this puzzle. Some words are hidden backward or diagonally, and some letters are used twice. See if you can find:

ACCRETION, BASIC, BLACK, DISK, DUST, EVENT, FANCY, GALAXY, GAS, HOLE, HORIZON, LIGHT, MASS, NASA, RADIATION, SINGULARITY, SPACE, SPHERE, STARS, SUN.

F N O I T E R C C A A E L O H
A R B A S I C O E D U S T P D
N O S R A T S I E V V K S I D
C E R E H P S J M J E I S K U
Y X A L A G E J Y O R N Z F N
S I N G U L A R I T Y Y T T S
G G Q Q R A D I A T I O N H U
A U S P A C E M K C A L B G N
S S A M M E N O Z I R O H I N
T E C C A S A N A V N K E L O

Mini Spy Classics

Mini Spy and Alpha Betty are sending a satellite into space. See if you can find the hidden pictures. Then color the picture.



- letter H
 - brush
 - ladder
 - heart
- yardstick
 - bird
 - banana
 - ear of corn
- book
 - comb
 - boomerang
- olive
 - letter L

Black Hole Fact-a-Roonies

- The first black hole to be detected by scientists was Cygnus X-1, discovered in 1971, but astronomers were predicting the existence of black holes as far back as the late 18th century.
 - Black holes don’t really die, but scientists believe they slowly evaporate over very long spans of time.
- You may have read books or seen movies in which a black hole is a **wormhole**, or a shortcut to another dimension. In reality, if you were to enter a black hole, you could not leave it.
 - The gravitational effect of black holes is only strong within the event horizon. From far away, they have the same gravity as other objects in space.
 - If you replaced our sun with a black hole, the only difference you’d notice would be a much colder climate. The planets would remain in the same orbit around the black hole.



Resources

- On the Web:**
- go.nasa.gov/4kXS3ZO
 - bit.ly/MPblackholes
- At the library:**
- “Time, Space and Black Holes for Kids” by Mark Jenks

Mini Jokes

- Boris:** How does a scientist freshen his breath?
- Bethany:** With experi-mints!



Eco Note

Invasive Asian hornets are rapidly spreading across Europe, preying on hundreds of native insect species that include some key pollinators. Researchers analyzed the gut contents of more than 1,500 hornet larvae from nests in the U.K., France, Spain and the island of Jersey, finding that 43 of the 50 most commonly eaten species were flower-visiting insects. While honeybees are the hornets’ primary prey, they also target bumblebees, butterflies, moths, flies and other wasps. This poses an additional threat to already-declining insect populations across the continent.

adapted with permission from Earthweek.com



For later:

Look in your newspaper for items about black holes and other objects in space.

Teachers: Follow and interact with The Mini Page on Facebook!

