

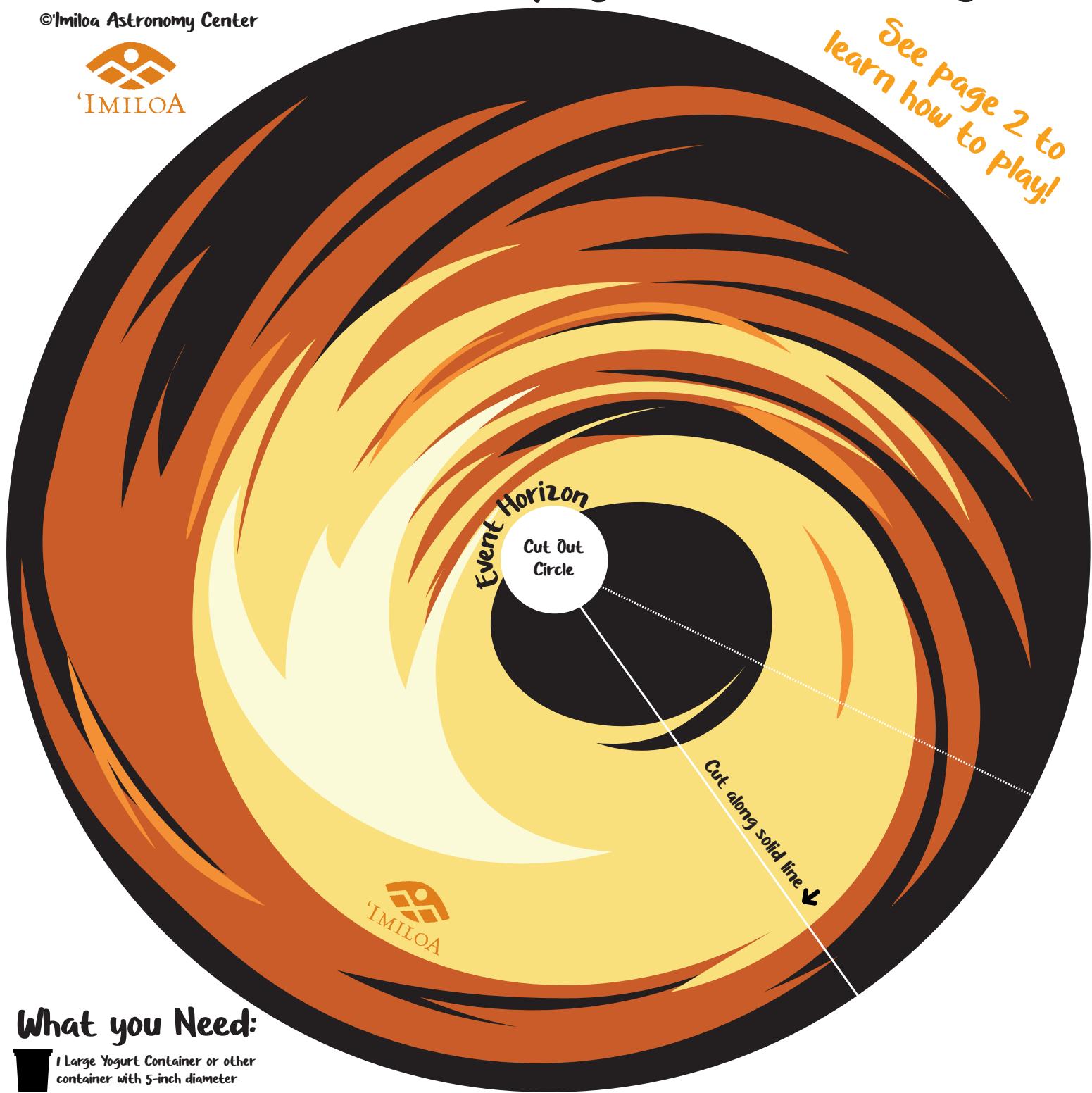
Race Around the Black Hole

Build a black hole and play the orbit challenge!

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See page 2 to
learn how to play!



What you Need:

1 Large Yogurt Container or other container with 5-inch diameter

Clear gift wrapping tape

A pair of scissors

Small spherical objects such as beads, marbles, or ball bearings

This page printed on card stock or design your own on a cereal box!

Craft Instructions:

1. Cut out circle on outer edge.
2. Cut along solid white line to the white circle in the center.
3. Cut out white circle.
4. Hold the craft (color-side-up) with one hand on either side of the newly cut line. Overlap the cut edge to line up with white dotted line. This will form a funnel-like shape. Place a strip of tape on the top and bottom to secure in place. Place the "funnel" pointing down over the open yogurt container.



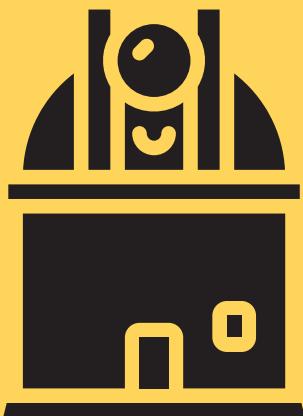
What is a black hole?



A black hole is a region of spacetime where gravity is so strong that nothing—no particles or even electromagnetic radiation such as light—can escape from it.

Say Cheese!

Pōwehi is the first black hole ever to have its picture taken! This is a supermassive black hole in the center of a far off galaxy called M87. In 2017 astronomers in Hawaii and around the world linked together telescopes to capture the first-ever image of this black hole. The telescopes collected so much information that scientists had to invent new computer programs and spend 2 years processing the data. Pōwehi is as big as our entire solar system and as massive as 6 billion Suns.



Pōwehi Photo debut 2019
(Does this photo make me look fat?)

How to Play!

Roll your bead, marble or other small spherical object into the black hole "cone."

Black holes are gravity to the **extreme!** If you were to touch the surface of the black hole—which is called the Event Horizon—you would not be able to escape its immense gravity. As dangerous as a black hole is, you can orbit around it as long as you don't touch the event horizon. **How long can your marbles orbit around this black hole before they touch the event horizon?**

A note on friction: No matter you do with this black hole craft, objects will always fall into the Event Horizon. This is because the paper construction introduces friction on your objects and cause them to slow down. However, out in space, there is no friction and stars are able to orbit around and around a black hole without falling in.

Inoa: Pōwehi

What's in a Name?

The name Pōwehi was given to the black hole at the center of galaxy M87 by Dr. Larry Kimura of the University of Hawai'i-Hilo. Pōwehi means "embellished dark source of unending creation" and is derived from the Kumulipo Hawaiian creation chant.