



FSC PROGRAM DESCRIPTION BLKH- Black Holes

Grade Level: High School (10-12)

Instructor: Lancaster

Location: Fernbank Science Center

Type: Planetarium lesson

Capacity: 200

Length: 75 Minutes

Program Description

Black Holes takes you on a fully immersive journey through one of the most mystifying, awe-inspiring phenomena in the universe: a black hole. Where do they come from? Where do they go? How do we find them? Is there one on Earth's horizon? What was Einstein's connection to them?

We will also explore stellar evolution- The life cycle of a star. What is the significance of a star's color? Why can't we see the majority of stars that are in our stellar neighborhood? What will be the fate of our Sun? These questions among others will be answered on our journey.

Georgia Performance Standards

SAST5. Obtain, evaluate, and communicate information about the connections between mass, gravity and fusion with respect to the life cycle of stars.

a. Develop and use models to explain the process of stellar evolution from star birth to star death, including binary systems. b. Construct an argument based on evidence from the Hertzsprung-Russell diagram to assess the properties of stars, including density, luminosity, temperature, rates of fusion, and spectral class.

c. Ask questions to evaluate evidence that predicts the lifespan and final stage of stellar evolution based on mass.

(Clarification statement: Include stellar remnants and events such as neutron stars, pulsars, black holes, supernovae.)

d. Construct an argument based on evidence that explores the connections among various cosmic phenomena and leading theories.

Key Vocabulary

Black Hole
Main Sequence
Neutron Star

Planetary Nebula
Supernova
White Dwarf

Quasar
Nova
Nebula

Pulsar
Red Dwarf
Fusion

Luminosity
Red Giant
Spectrum

H-R Diagram
Red Supergiant

Pre-Visit Activities

Have students understand the difference between the key vocabulary terms

Post-Visit Activity

Have students create their own HR Diagram

<https://www.copley-fairlawn.org/cms/lib4/OH01001067/Centricity/Domain/460/H-R%20Diagram%20Wksht.pdf>