**Black holes topics**

**Be able to explain the following:**

* How can astronomers observe or “see” black holes?
* What happens when an object enters a black hole?
* What is fusion? What is the connection between stars and fusion?
* Describe the balance between gravity and radiation in stars. Explain the connection between the balance and black hole formation.

**Know the following definitions**

**Accretion Disk**

An orbiting disk of matter spiraling in toward a black hole.

**Black Hole**

Remnant of a star that is so dense that nothing, not even light, can escape its gravity field.

**Event Horizon**

The invisible boundary around a black hole which when passed nothing can escape the gravitational pull - not even light.

**Gamma-Ray Burst**

A sudden burst of gamma rays from deep space; such bursts apparently come from distant galaxies, but their precise mechanism is unknown.

**Singularity**

A point in which matter is infinitely dense, as in the center of a black hole or the universe at the very beginning.

**Super-Massive Black Hole**

Is the largest type of black hole in a galaxy, on the order of hundreds of thousands to billions of solar masses.

**Intermediate-Mass Black Hole**

A black hole with a mass between a few hundred and few thousand solar masses.

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Helpful websites for further review:

WEB SITES & ACTIVITIES

<http://Brainpop.com> (ludlowe; bulldogs) search black holes

<http://amazing-space.stsci.edu/resources/explorations/>

Interactive tutorial about black holes

<http://swift.gsfc.nasa.gov/docs/swift/swiftsc.html>

Information about the Swift Mission and its search for gamma

-ray bursts, one of the earmarks of forming black holes

<http://swift.sonoma.edu/educators.html>

Resources for educators on black holes, gamma rays, and the Swift Mission

<http://www-glast.sonoma.edu/>

Information and educational resources about additi

onal international missions studying gamma rays

<http://mystery.sonoma.edu/live_from_2-alpha/index.html>

Interactive, inquiry-based mystery game us

ing knowledge to identify a black hole

<http://www.explorelearning.com/index.cfm?method=cResource.dspView&ResourceID=14>

Black hole simulation game—try to get radioactive waste in

to recycling bins, past black holes using the equation for

gravitational force

<http://archive.ncsa.uiuc.edu/Cyberia/NumRel/NumRelHome.html>

Spacetime Wrinkles Web site—online exhibit

about Einstein’s Theory of Relativity

<http://cosmology.berkeley.edu/Education/BHfaq.html>

Frequently asked questions on black holes

<http://archive.ncsa.uiuc.edu/Cyberia/Expo/MovieIndex.html>

Movies from the Edge of Spacetime, black hole simulations

<http://cfa-www.harvard.edu/seuforum/>

Black holes informational materials developed by Harvard in association with NASA

<http://imagine.gsfc.nasa.gov4>

ASA’s “Imagine the Universe” site, ask an astrophysicist about black holes