



Teacher's Guide to

WONDERS OF THE UNIVERSE

OBJECTIVES:

- To acquire an overview of the many components that make up our universe
- To witness an animation of how we think the universe formed
- To explore how stars are formed and how they ultimately end their lives.

This show conforms to the following state science standards: 12.F.1b, 12.F.2a, 12.F.2b, 12.F.2c, 12.F.3a, 12.F.3b, 12.F.3c, 12.F.4a, 12.F.5a, 12.F.5b

BRIEF SHOW DESCRIPTION:

Peer deep into space through the eyes of the orbiting Hubble Space Telescope and travel back billions of years in time to witness the birth of the universe. On this breathtaking excursion, you'll witness the formation of galaxies and explore some of the most wondrous nebulae and astronomical structures yet discovered. As your travels continue, you'll fly deep into our own Milky Way galaxy and return home to Earth on a spectacular tour through the solar system. We combine the show with a short tour of some of the wonders in the current sky.

PRE-VISIT ACTIVITIES/TOPICS FOR DISCUSSION:

- Discuss the idea of a "universe." What does the word mean? The concept of "everything there is" isn't necessarily an easy concept to grasp.

POST-VISIT ACTIVITIES/TOPICS FOR DISCUSSION:

- Make a timeline for both the events that led up to our universe OR the lifespan of a star.
- Check out the "wonders of the universe" podcast at: <http://education.nyas.org/2011/09/wonders-of-the-universe-podcast/>
- Get a copy of the video "The Elegant Universe" and then use the teacher's guide at: http://www.pbs.org/wgbh/nova/education/activities/pdf/3012_elegant.pdf

VOCABULARY LIST:

Asteroid belt	Light year	Universe
Constellation	Nebula	
Galaxy	Supernova	

INTERNET RESOURCES:

- Big Bang Theory (misconceptions & evidence): <http://www.big-bang-theory.com/>
- NASA's big bang site: <http://science.nasa.gov/astrophysics/focus-areas/what-powered-the-big-bang/>
- NASA's news of the universe: <http://www.nasa.gov/topics/universe/index.html>
- Scale of the universe: <http://www.atlasoftheuniverse.com/>
- Hubble Space Telescope images: <http://hubblesite.org>.
- Hubble activities: <http://amazing-space.stsci.edu/>

- Activities surrounding the Sloan Digital Sky Survey:
<http://cas.sdss.org/dr7/en/proj/teachers/basic/universe/tips.asp>
- Check out the “Astronomy picture of the day”: <http://apod.nasa.gov/apod/astropix.html>