



Supplemental Educational Support Materials for Special Feature: “Hubble Is Back in Business”

Discussion questions

Q1.

If you had to choose a favorite Early Release Observation (ERO) image, what would you choose and why?

Answer:

Your answers will depend on which ERO object is your favorite. You may have made your choice based on the colors in the image, the shape of the object or its name, the science contained in the image, or because you have heard of the object.

Q2.

Look at the image of the Butterfly Nebula, NGC 6302. Write down questions you would ask an astronomer about the nebula.

Answer:

Some questions you might want to ask are:

- Why does the object have so many colors?
- Would the nebula look as colorful if we could see it with our eyes?
- Do the colors give information about the object?
- How did the nebula form?
- Do all stars end their lives as planetary nebulae?
- Do other planetary nebulae look like NGC 6302?
- Where is the star that created this nebula?
- How long will the nebula look like this?
- What will happen to the nebula?

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Vocabulary words

Advanced Camera for Surveys (ACS)

An optical camera with a wavelength range that spans from ultraviolet to near-infrared light. The camera's sharp eye and broader viewing area allow astronomers to study the life cycles of galaxies in the remotest regions of the universe.

Astronomer

A scientist who studies the universe and the celestial bodies residing in it, including their composition, history, location, and motion. Many of the scientists at the Space Telescope Science Institute are astronomers. Astronomers from all over the world use the Hubble Space Telescope.

Hubble Space Telescope (HST)

An orbiting telescope that collects light from celestial objects in visible, near-ultraviolet, and near-infrared wavelengths. The telescope's primary mirror is 2.4 m (8 ft) wide. It orbits the Earth about every 96 minutes and is powered by sunlight collected with its two solar arrays.

Light-year

The distance that a particle of light (photon) will travel in a year — about 10 trillion kilometers (6 trillion miles). It is a useful unit for measuring distances between stars.

Near-infrared light

The part of the electromagnetic spectrum that is just beyond visible light and is not visible to the human eye. Just as there are low-pitched sounds that cannot be heard, there is low-energy light that cannot be seen.

Observatory

A structure designed and equipped for making astronomical observations. Observatories are located on Earth and in space.

Space Telescope Imaging Spectrograph (STIS)

The Space Telescope Imaging Spectrograph is a general-purpose spectrograph that detects ultraviolet, visible, and near-infrared light. A spectrograph works by breaking up light from an object into its individual wavelengths so that its composition, temperature, motion, and other chemical and physical properties can be analyzed.

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Ultraviolet (UV) light

The part of the electromagnetic spectrum that has slightly higher energy than visible light, but is not visible to the human eye. Just as there are high-pitched sounds that cannot be heard, there is high-energy light that cannot be seen. Too much exposure to ultraviolet light causes sunburns.

Visible light

The part of the electromagnetic spectrum that human eyes can detect; also known as the visible spectrum. The colors of the rainbow make up visible light. Blue light has more energy than red light.

Education standards

McREL Language Arts Standard 7

Uses reading skills and strategies to understand and interpret a variety of informational texts

Level II (Grades 3-5)

1. Uses reading skills and strategies to understand a variety of informational texts (e.g., textbooks, biographical sketches, letters, diaries, directions, procedures, magazines)

Level III (Grades 6-8)

1. Uses reading skills and strategies to understand a variety of informational texts (e.g., electronic texts; textbooks; biographical sketches; directions; essays; primary source historical documents, including letters and diaries; print media, including editorials, news stories, periodicals, and magazines; consumer, workplace, and public documents, including catalogs, technical directions, procedures, and bus routes)

Use the following url to view the Mid-continent Research for Education and Learning (McREL) content standards: <http://www.mcrel.org/compendium/browse.asp>

SEE MORE Hubble images and read more
Star Witness news stories at Amazing Space,
NASA's award-winning educational Web site for
K-12 students and teachers.

