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The Hubble Space Telescope captured this image of Eagle Nebula (M16) Pillar Detail: Portion of Base. Image Credit: [NASA](#); [ESA](#) and [The Hubble Heritage Team \(STScI/AURA\)](#).

We see space-telescope pictures in color. Were we to travel in a spaceship, to see for ourselves what Hubble and Spitzer see, would we see these images in color? The answer is “not exactly.” So...why are the pictures colored - and - how does it happen?

NASA adds color to black-and-white pictures to:

- Depict how an object might look to us if we could see as Hubble and Spitzer see;
- Visualize features of an object that would ordinarily be invisible to the human eye;
- Bring out an object’s subtle details.

A space telescope detects both the kinds of light that we can see - and - the kinds of light that we cannot. For example, the unaided human eye can see the spectrum of colors in a prism (or in a rainbow), but without help we cannot see infrared or ultraviolet. Objects in space consist of light wavelengths which are both visible, and invisible, to the human eye.

To allow us to see everything that Hubble sees, for example, scientists use different colors - for visible and invisible light - so the objects in space (which we could not entirely see on our own) come completely alive in the finished images. To make that happen, Hubble has special filters which either allow in, or keep out, specified light wavelengths.

After its filters (there are forty-eight of them) eliminate whatever light is unwanted, Hubble (the link depicts a three-dimensional model) electronically records the light which remains. Scientists working with Hubble’s recorded images then use a combination of colors - red, green and blue - to create the pictures we see. As the Hubble team states:

When mixed together, these three colors of light can simulate almost any color of light that is visible to human eyes. That’s how televisions, computer monitors and video cameras recreate colors.

The finished images take one of three forms. They can be natural (such as these for [Mars](#) and [Galaxy ESO 510-G13](#)), representative ([Infrared Saturn](#) and [Egg Nebula](#)) or enhanced ([Cat’s Eye Nebula](#) and [Eagle Nebula](#)).

See [Alignments to State and Common Core standards for this story online at:](#)

<http://www.awesomestories.com/asset/AcademicAlignment/COLORED-PICTURES-from-SPACE-Exploring-Space-Images-from-NASA>

See Learning Tasks for this story online at:

<http://www.awesomestories.com/asset/AcademicActivities/COLORED-PICTURES-from-SPACE-Exploring-Space-Images-from-NASA>

Media Stream

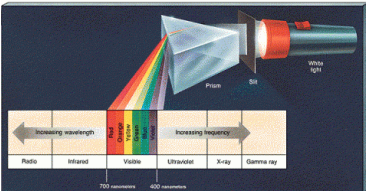


Spectrum of Light - In a Double Rainbow

Image online, courtesy Wikimedia Commons. License: CC BY-SA 2.5.

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Prism - NASA Illustration

Image online, courtesy the University of Rochester website.

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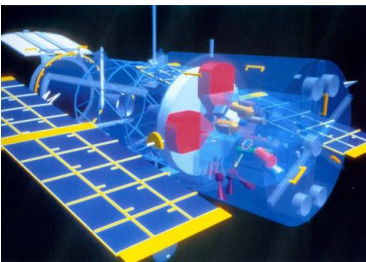


Rainbow Photo - Seeing the Spectrum

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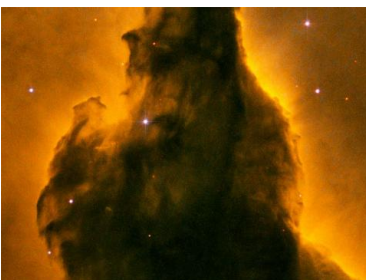


Hubble - A Computer Generated Model - by NASA

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