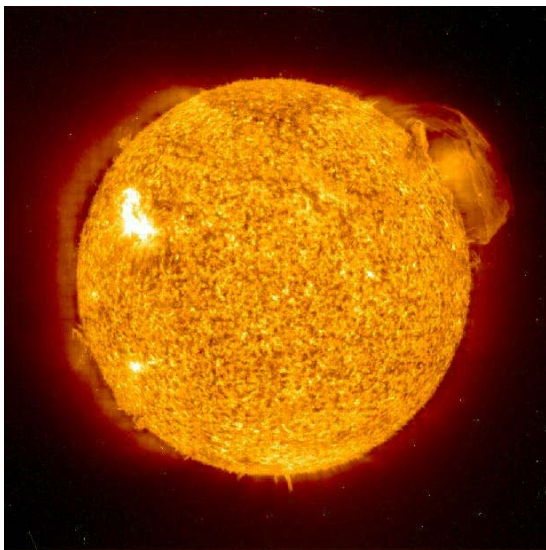


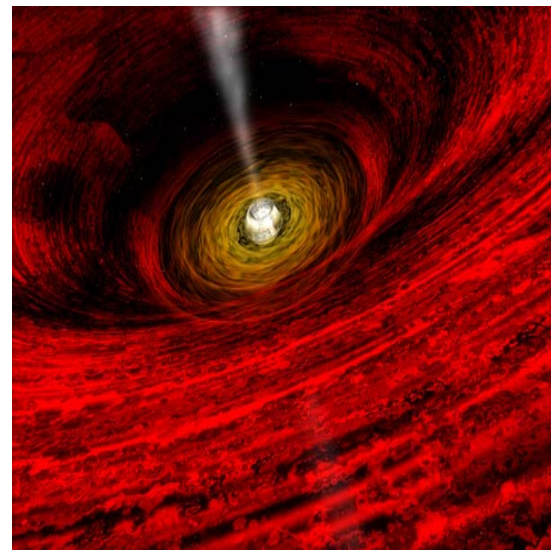
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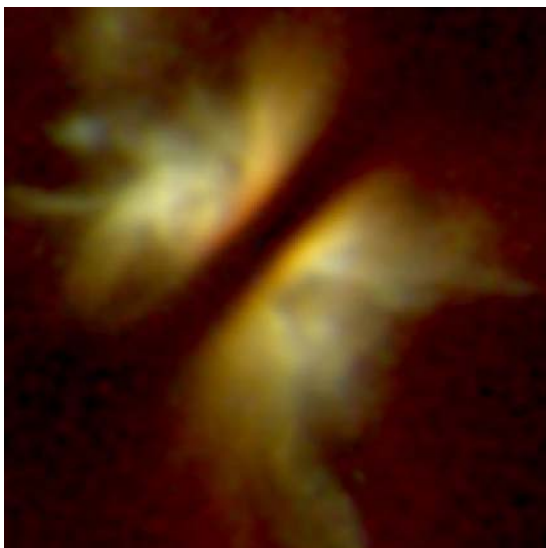
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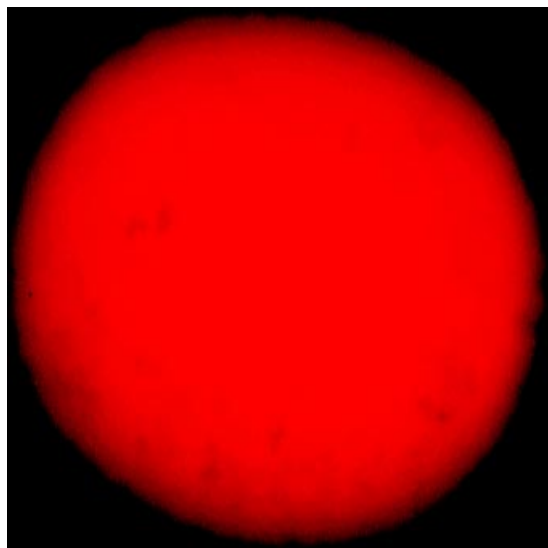
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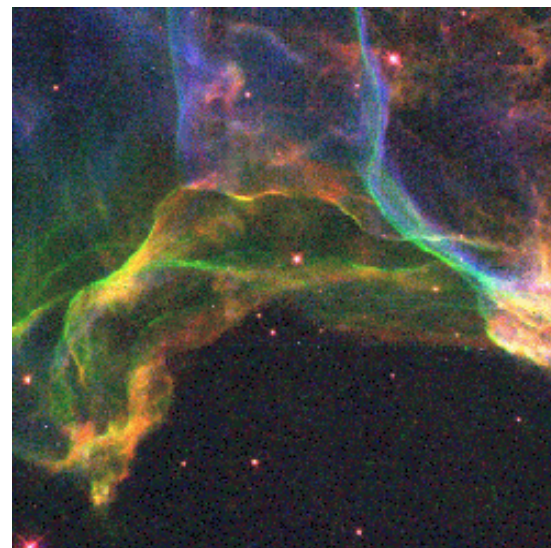
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5



6



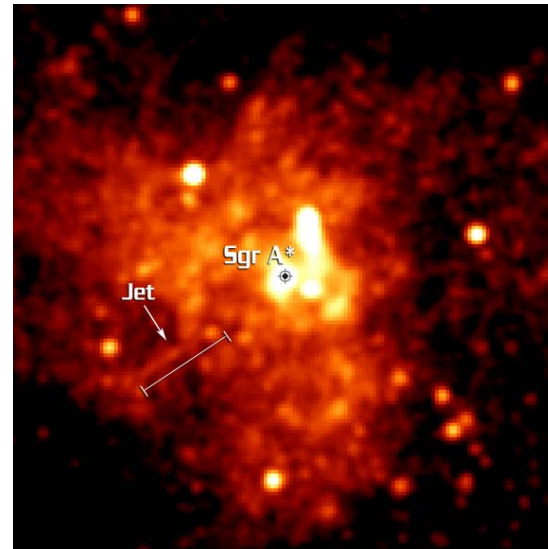
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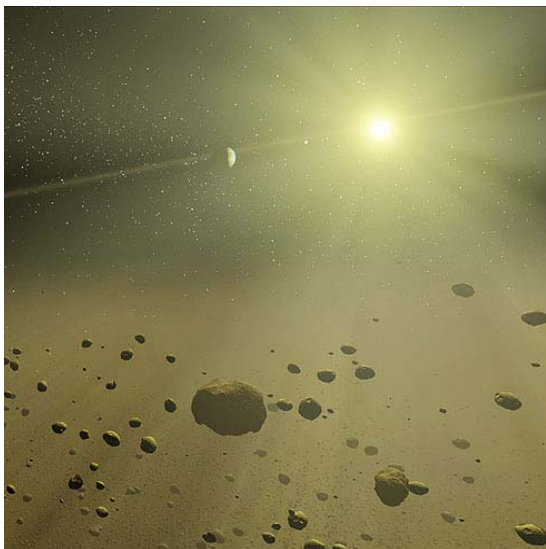
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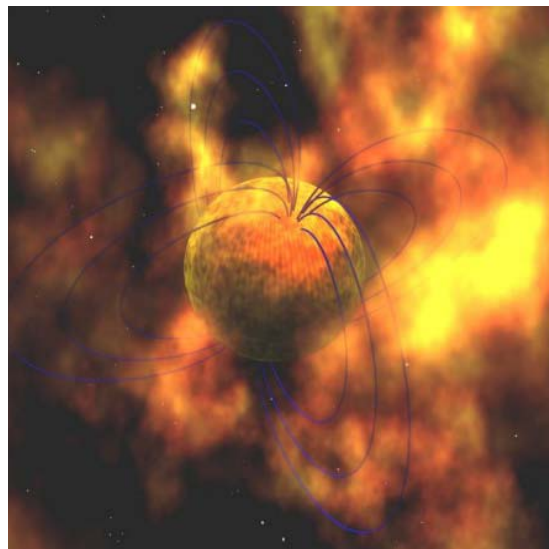
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10



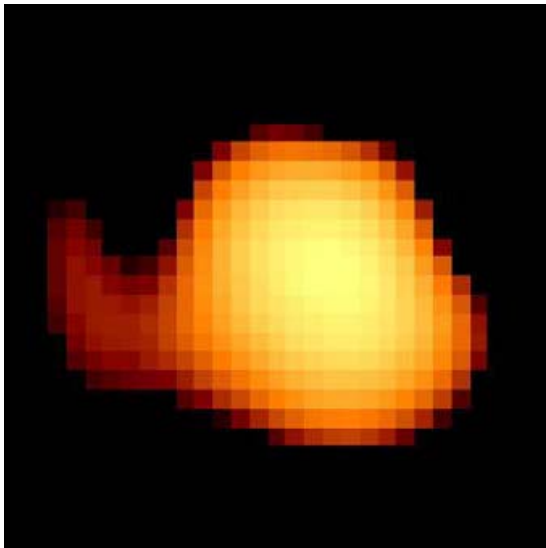
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12



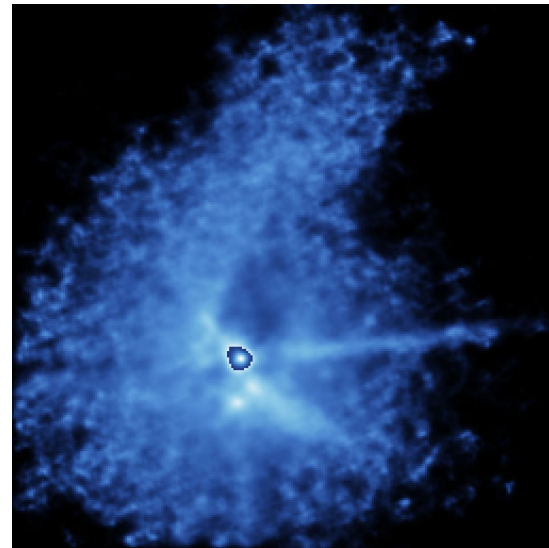
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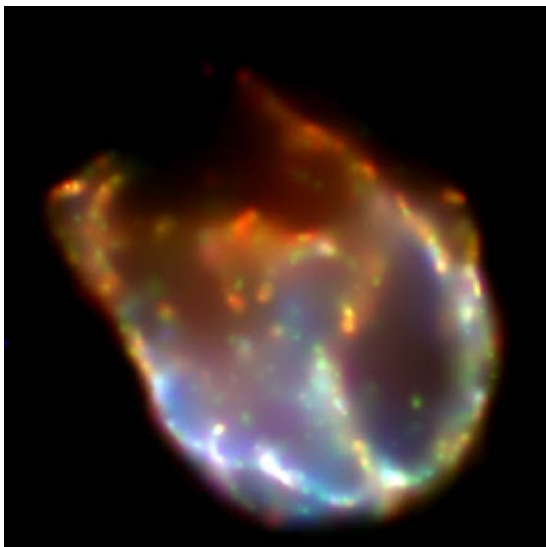
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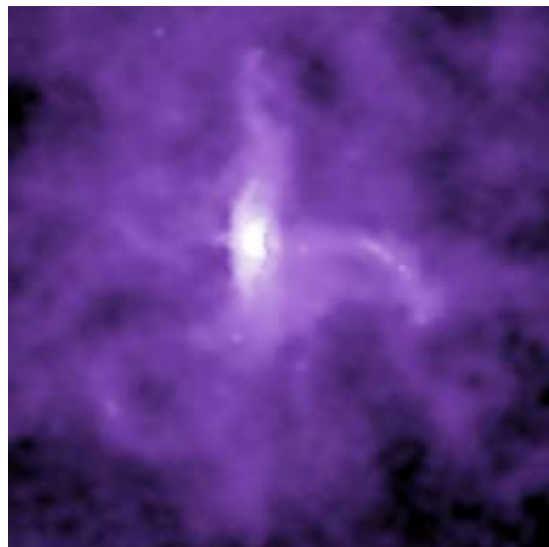
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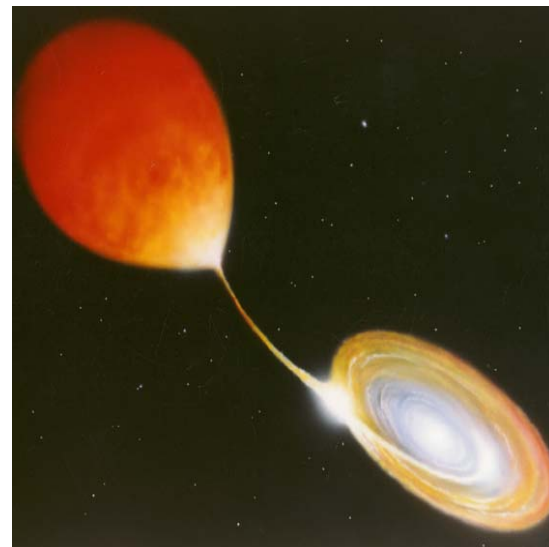
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17



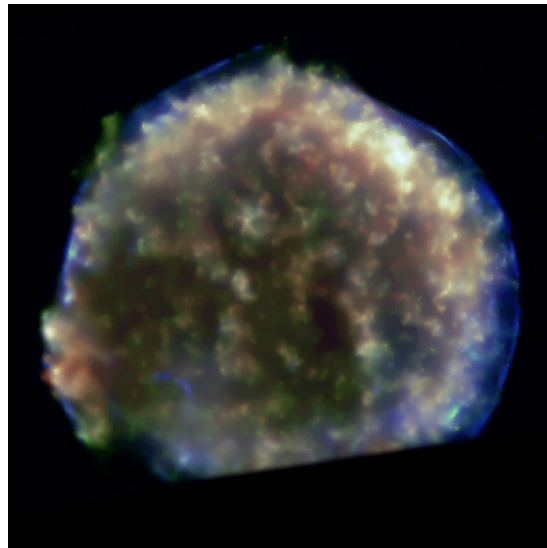
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19



20



21



22



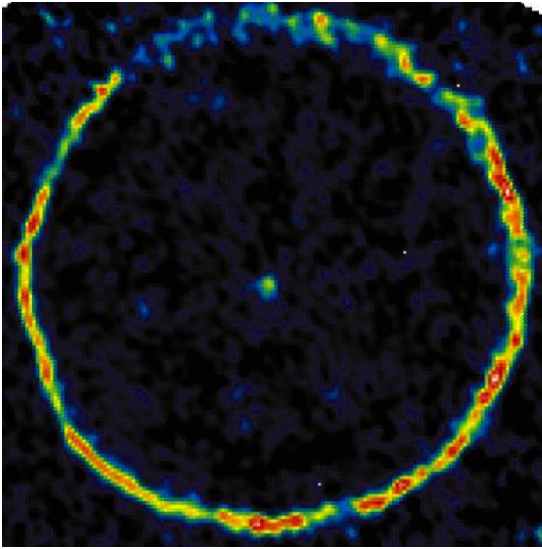
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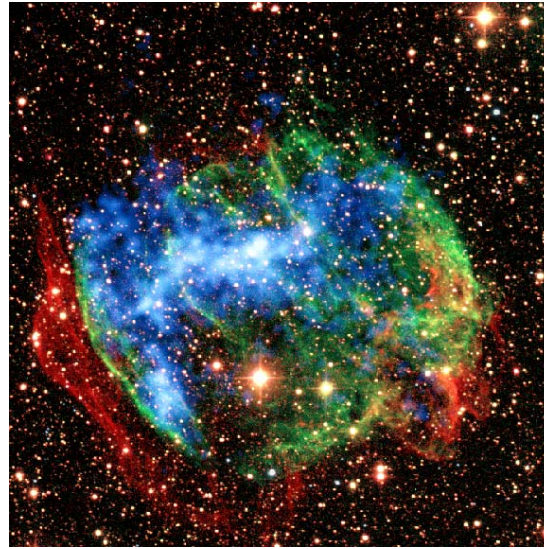
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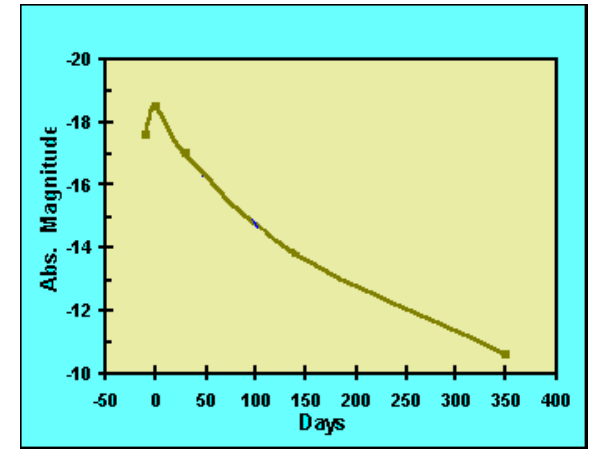
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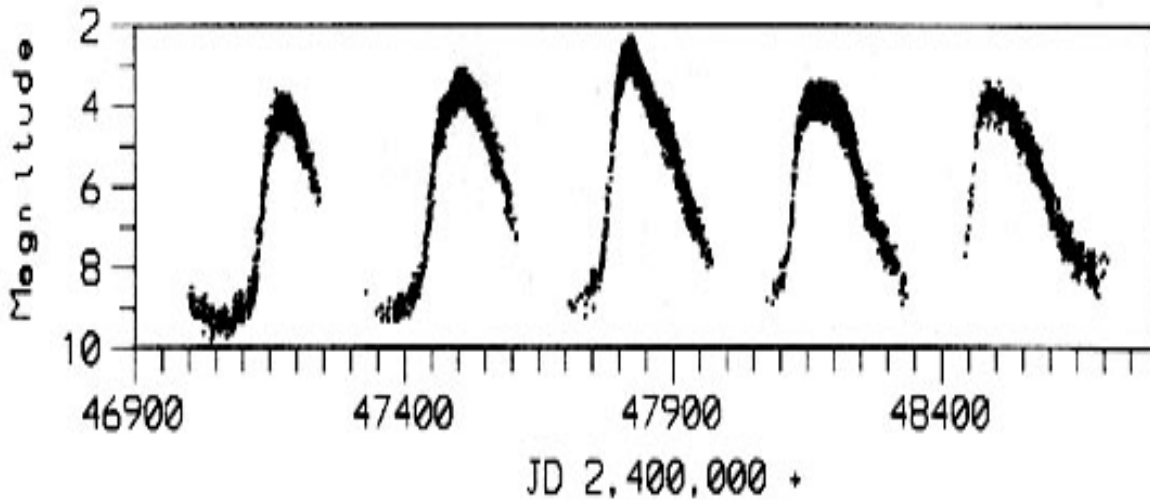
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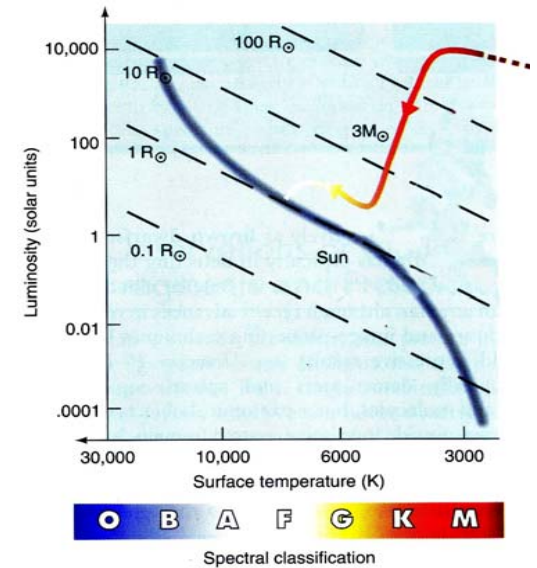
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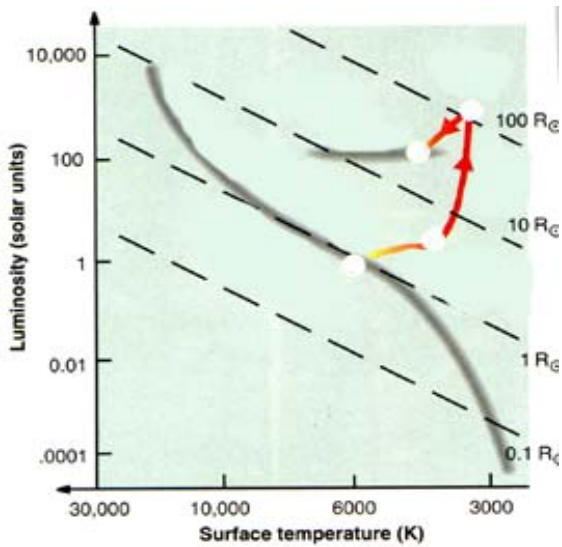
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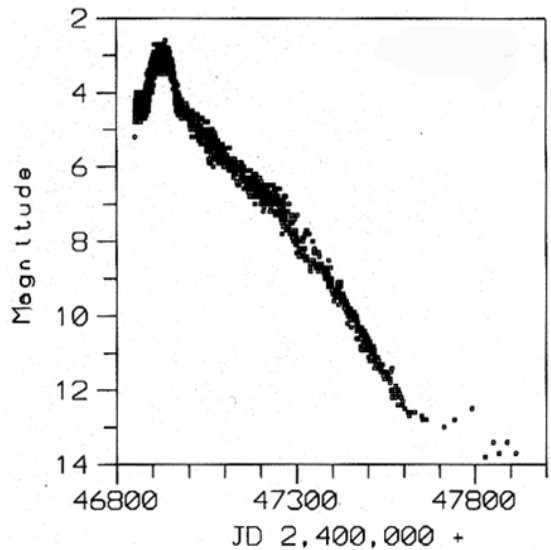
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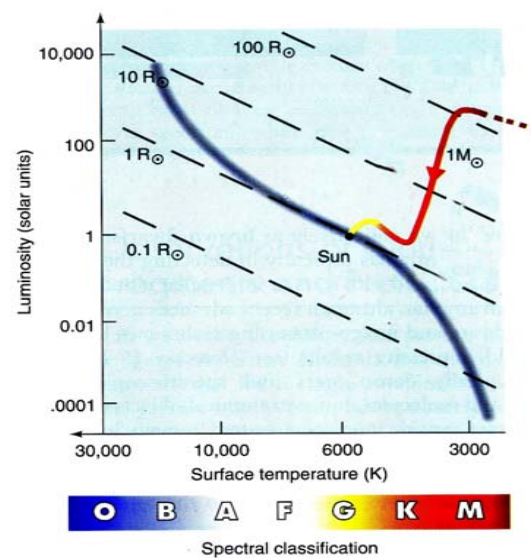
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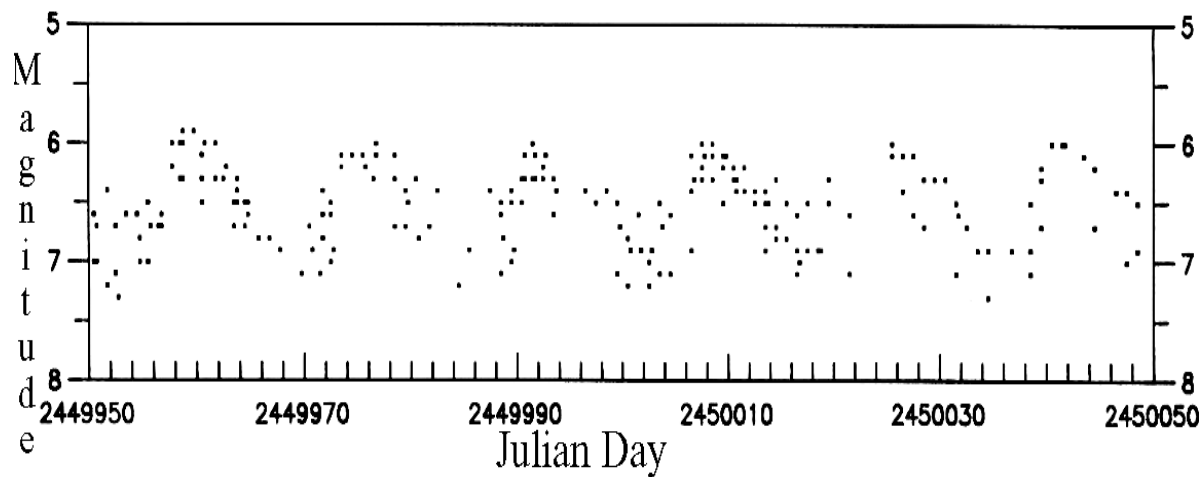
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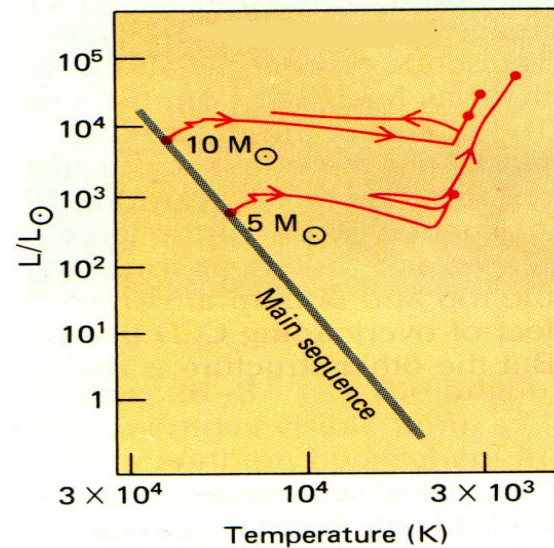
32



33



34



Stellar Cycles Post Assessment Activity - Image Descriptions

The name and type of object and/or artist illustration for each of the images is listed below. The stage of stellar evolution is indicated by the bold type. The URL for each of the deep sky objects is listed. For more specific information concerning the sequencing or selection of the images please refer to the [Teacher Guide](#) and [Answer Key](#).

1. The Sun is a mid-sized main sequence star.
[Solar and Heliospheric Observatory (SOHO) image]
<http://antwrp.gsfc.nasa.gov/apod/ap981212.html>
2. Sirius B (dim object in the background) is a white dwarf in a binary system with Sirius A (bright object in the foreground) - a 2 solar mass main sequence star.
[McDonald Observatory image]
<http://antwrp.gsfc.nasa.gov/apod/ap960902.html>
3. Artist illustration of a black hole.
[April Hobart, Chandra X-Ray Center]
4. Protoplanetary disk in the constellation of Taurus.
[Hubble Space Telescope image]
<http://www.spacetelescope.org/images/html/opo9905q.html>
5. Artist Dana Berry illustration used for the red supergiant stage.
6. The Cygnus Loop is the expanding debris from a supernova remnant. [Hubble Space Telescope image]
<http://antwrp.gsfc.nasa.gov/apod/ap010623.html>
7. Massive blue stars; the Butterfly open cluster of young massive stars. [NOAO image]
<http://antwrp.gsfc.nasa.gov/apod/ap990106.html>
8. Close-up of stellar nursery in the Trifid Nebula.
[Hubble Space Telescope image]
<http://antwrp.gsfc.nasa.gov/apod/ap010812.html>
9. The Sagittarius A black hole in the center of the Milky Way Galaxy. *NOTE: This image is included for a specific reason, to address a common misconception that all black holes are the end result of the collapse of a massive star. Sagittarius A is the massive black hole at the center of the Milky Way Galaxy. This type of black hole is not involved with stellar evolution. You can use this image as an assessment of student understanding of different types of black holes, or simply for discussion.*
[Chandra X-Ray Observatory image]
<http://chandra.harvard.edu/photo/2003/0203long/more.html>
10. NASA Artist illustration of young planetary system.
[NASA, T. Pyle]
<http://www.spitzer.caltech.edu/Media/releases/ssc2004-22/ssc2004-22a.shtml>
11. Artist illustration of a magnetar - a neutron star with a super strong magnetic field. [Dr. Robert Mallozzi/University of Alabama in Huntsville, and Marshall Space Flight Center]
<http://chandra.harvard.edu/photo/2002/1132/index.html>
12. Artist illustration used to represent a Type Ia supernova explosion.
[D. Berry, Chandra X-Ray Observatory]
13. Mira is a red giant star.
[Hubble Space Telescope image]
<http://antwrp.gsfc.nasa.gov/apod/ap010121.html>
14. The Ghost Nebula is a white dwarf with an expanding planetary nebula. [Hubble Space Telescope image]
<http://antwrp.gsfc.nasa.gov/apod/ap040207.html>

15. a T-Tauri star system. These protostars have violently active surfaces and will soon become main sequence stars.
[Canada-France-Hawaii Telescope image]
<http://antwrp.gsfc.nasa.gov/apod/ap010604.html>
16. N132D is a Type II supernova remnant.
[Chandra X-Ray Observatory image]
<http://chandra.harvard.edu/photo/2002/0050/index.html>
17. 3C58 is a pulsar.
[Chandra X-Ray Observatory image]
<http://chandra.harvard.edu/photo/2004/3c58/>
18. Dana Berry illustration of a red giant and white dwarf in a binary system.
19. The Omega stellar nursery (M17).
[Hubble Space Telescope image]
<http://antwrp.gsfc.nasa.gov/apod/ap040828.html>
20. The Tycho supernova Type Ia supernova remnant.
[The Chandra X-Ray Observatory image]
<http://chandra.harvard.edu/photo/2002/0005/index.html>
21. Artist Ralf Schoofs' image of the red giant stage of a Sun-sized star.
www.ralf-schoofs.de
22. Antares is a red supergiant star.
[David Malin, Anglo-Australian Observatory image]
<http://antwrp.gsfc.nasa.gov/apod/ap980726.html>
23. SN1987a is a Type II supernova remnant.
http://www.seds.org/messier/xtra/ngc/lmc_sn1987A.html
24. The Eskimo nebula is a planetary nebula.
[Hubble Space Telescope image]
<http://antwrp.gsfc.nasa.gov/apod/ap031207.html>
25. TT Cygni is an unstable red giant star.
[H. Olofsson, Stockholm Observatory image]
<http://antwrp.gsfc.nasa.gov/apod/ap010304.html>
26. W49B is a Type II supernova remnant from a massive star that collapsed into a black hole.
[Chandra X-Ray Observatory image]
<http://chandra.harvard.edu/photo/2004/w49b/>
27. Type Ia supernova light curve.
28. Long period variable star Mira-type light curve, similar to all red giants evolving through the Mira instability strip on the H-R diagram.
<http://www.aavso.org/vstar/vsots/1298.shtml>
29. A massive protostar dropping onto the main sequence of the H-R diagram. [Credit Astronomy Today, Prentice Hall]
30. A one-solar mass main sequence star evolves to the red giant branch of the H-R diagram. [Credit Astronomy Today, Prentice Hall]
31. SN1987a, a Type II supernova light curve.
32. A sun-sized protostar dropping onto the main sequence of the H-R diagram. [Credit Astronomy Today, Prentice Hall]
33. A Cepheid variable star light curve which is a stage that many lower high mass stars evolve through (Cepheid instability strip on the H-R diagram) on their way to the red supergiant branch of the H-R diagram.
34. Massive stars evolve to the red supergiant giant branch of the H-R diagram from the main sequence.
[Credit Astronomy Today, Prentice Hall]

Illustrations from artists Dana Berry and Ralf Schoofs are included with this activity by special permission from the artists.