



Star Clusters and Supernova Lesson Plan

Time: 40 minutes

Goals: To gain an understanding of the distance to star clusters and supernova remnants and the methods used to calculate their distance.

Objectives: Students will:

- Watch the “Star Clusters and Supernova” segment of the “How far away is it” video book.
- Optionally, find the Kepler Supernova on the Spitzer Space Telescope website.
- Take a short quiz.

Materials:

- Internet connection with a computer for viewing [“Star Clusters and Supernova” segment on YouTube](#)

Directions:

- Introduce the Star Clusters and Supernova segment as our first look at combined Hubble Space Telescope, Spitzer Infrared Space Telescope, and Chandra X-Ray Space Observatory photographs. Point out that Supernovae represent the greatest explosions mankind has ever seen.
- Show the video.
- Review what they saw:
 - How big star clusters can get.
 - How a Supernova is created.
 - How we measure distance to some Supernova.
 - How large a Supernova remnant can get.

How Far Away Is It – Star Clusters and Supernova



- Look up the Supernova on the Spitzer Infrared Space Telescope website.
 - With a computer connection, go to <http://www.spitzer.caltech.edu/>
 - Enter 'Supernova' in the search box and click 'Go'.
 - Brows through the variety of Supernova images available in infrared.

Assessment:

1. Take a simple quiz. Print and distribute the quiz on page 3. Here are the answers:
 - What kind of star is left behind after a supernova?
Answer: b) Neutron Star
 - What kind of supernova enables us to know the mass of the star and therefore the luminosity of its explosion?
Answer: c) Type 1a Supernova
 - If a star, 42 light years away from us, were to supernova, would the blast reach us?
Answer: Yes



Star Clusters and Supernova quiz

- What kind of star is left behind after a supernova?
 - a) White dwarf
 - b) Neutron star
 - c) Pulsar
 - d) Black Hole
- What kind of supernova enables us to know the mass of the star and therefore the luminosity of its explosion?
 - a) Full implosion
 - b) White dwarf collapse
 - c) Type 1a supernova
 - d) Any supernova
- If a star, 42 light years away from us, were to supernova, would the blast reach us?

