This guide has suggestions for the following stellar evolution activities: Our Cosmic Connection, Cosmic Webquest, and Stellar Cycles.

Our Cosmic Connection:

The Our Cosmic Connection task is a sequencing activity using the set of 24 images provided. The purpose of the activity is to have students apply their knowledge of stellar evolution in a format that allows flexibility. The content that is necessary for the students to be successful is provided in The Story of Stellar Evolution: Introduction and Background. All of the types of objects contained within the 24 images are discussed in the introduction and background. The entire image set can be provided to the students, or specific images can be selected and provided, depending upon the ability level of the classroom.

There are several ways that this activity can be used. The Image Set can be arranged into three different types of sequences of stellar evolution: a mid-sized star, a massive star, and a Type Ia supernova event. Each student can arrange all three, or different students can present one of the sequences, or a group of students can work together to present either one or all three of the different types of stellar evolution. Students can either present their sequences in any format they or the teacher selects, or the Templates can be used. There is a Template for each of the three possible sequences. Each student will need several of the template sheets, and paste the images onto the sheets and write their description of each image in the space provided on the templates. Some of the images are used for all of the sequences so if a student, or group of students, is assigned more than one sequence they will need more than one set of the images. A description of what the images are is provided (See Image Description), as well as a Visual Answer Key. The visual answer key provides several different possible sequences for mid-sized, massive, and Type Ia. These are only some of the possible sequences. Most important are the student descriptions of the images and their defense of their sequences.

Cosmic Webquest:

The Cosmic Webquest is the internet version of the Our Cosmic Connection activity. This activity uses the same Image Set as Our Cosmic Connection and can be used in a variety of ways: computer lab assignment, make-up lesson, enrichment activity, and individual or class project. In this version, the students are sent to websites to gather information about each of the images (with the exception of the image of Earth). The websites have an image and description of an object that is similar to each of the images. The students need to write down basic information about each of the images, (or the PDF version can be printed out) then they can use the Templates to paste the images and write a brief description about each of the images. Read the description in the paragraph above for some of the possible ways of using this activity. The Visual Answer Key will give you some of the possible sequences for mid-sized and massive stars, and Type Ia supernova events.

Stellar Cycles:

Stellar Cycles is a performance task - an assessment tool to determine student understanding of stellar evolution. After students have had the background information, and used either the Our Cosmic Connection or Cosmic Webquest activities, Stellar Cycles can be used as an assessment. The Image Set is different than the image set used for the other two activities, and can be used in the same way - to arrange sequences of the evolution of mid-sized and massive stars. For those who present Hertzsprung-Russell diagrams (H-R diagrams) and/or light curves in the classroom, this image set includes both H-R diagrams and light curves that involve stellar evolution. The Story of Stellar Evolution: Introduction and Background includes the information necessary to include the diagrams and light curves, both in the classroom and in the assessment. And as for the Our Cosmic Connection activity, you may have students prepare one or more sequences. You can use the Templates and collect they to grade as you would a written exam, or elect to have the students present and defend their sequences before the class. A scoring rubric is provided to help grade the presentations. An Image Description is included, as well as a Visual Answer Key of some of the possible correct sequences.