

The Life Cycle of a Star

Name: _____ **Date:** _____

LEARNING OBJECTIVE

Students will sequence and illustrate the stages of a star's life cycle based on its starting mass, using a flip-book format.

MATERIALS NEEDED

- 6-8 index cards or small paper squares
- stapler or hole punch and string/brad
- colored pencils or markers
- ruler
- pencil

HANDS-ON ACTIVITY

1. Research (or use provided descriptions) the main stages of a Sun-like star's life cycle: nebula, protostar, main sequence star, red giant, planetary nebula, white dwarf.
2. On separate index cards, draw and label each stage in order, adding one sentence describing what is happening at that stage.
3. On 2 additional cards, draw and label the different final stages for a massive star (much bigger than the Sun): red supergiant, supernova, and either a neutron star or black hole.
4. Bind your cards together in order (staple along one edge, or hole-punch and tie with string) to create a flip-book showing the life cycle in sequence.
5. Flip through your book and, on the last page, write 2-3 sentences comparing the fate of a Sun-like star to the fate of a much more massive star.

QUESTIONS

1. **What are the main life stages of a star like our Sun, in order?**
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2. **What determines whether a star ends its life as a white dwarf versus a supernova/neutron star/black hole?**
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3. **What is a 'main sequence' star, and roughly how long does a star spend in this stage?**

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- 4. Our Sun will eventually become a red giant. What will happen to its size, and how might that affect the inner planets, including Earth?**
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