

Sun Life Cycle

Track a Sun-like star and its recycled gas.

HS-ESS1-1 "Develop a model based on evidence to illustrate the life span of the sun and the role of nuclear fusion in the sun's core to release energy that eventually reaches Earth in the form of radiation..."

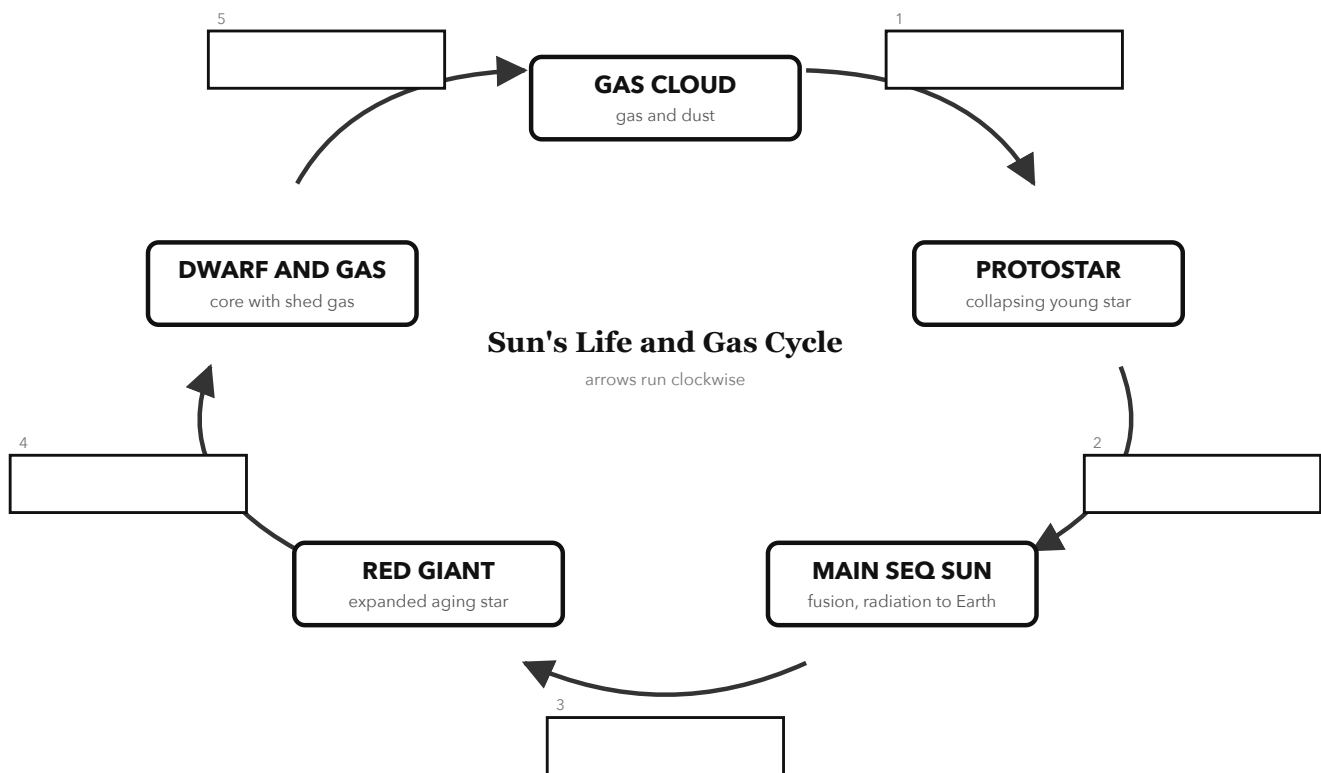
NAME _____

DATE _____

1 LABEL THE MODEL _____ Word bank below

Use each word-bank process once. Write one process in each numbered box to show how the stages connect.

WORD BANK	core fuel becomes scarce	core fusion begins	gravity collapses gas
	outer gas is shed	shed gas joins clouds	



2 RUN THE MODEL Use your finished diagram

- 1 Astronomers observe low-mass stars as protostars, main-sequence stars, red giants, and white dwarfs. How does this evidence support the order of the star stages in the model?

- 2 Solar flares can suddenly increase the Sun's radiation. Which stage does this evidence describe, and what can vary at Earth?

- 3 In the MAIN SEQ SUN stage, what releases energy, and in what form does that energy reach Earth?

3 CHECK IT Before you turn it in

☐ I used each process once.

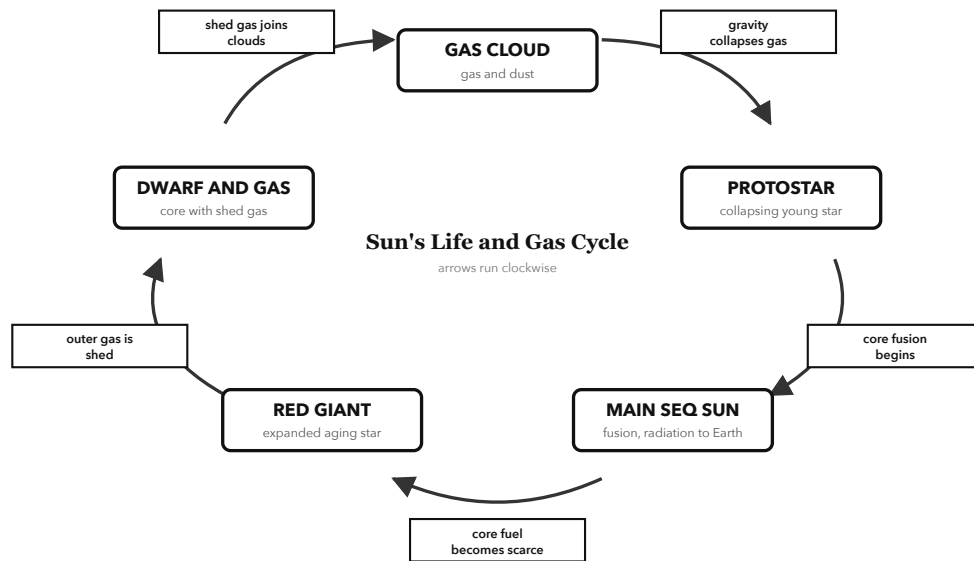
☐ I followed the arrow direction.

☐ I connected fusion to radiation.

TEST THE MODEL

What important part of the real Sun system is simplified or left out of this model?

PART 1 • COMPLETED MODEL



PART 2 • RUN THE MODEL

1. It supports that Sun-like stars form, spend most of their lives on the main sequence, expand into red giants, and end as white dwarfs. (Astronomers observe low-mass stars as protostars, main-sequence stars, red giants, and white dwarfs. How does this evidence support the order of the star stages in the model?)
2. **MAIN SEQ SUN. The radiation received at Earth can increase suddenly.** (Solar flares can suddenly increase the Sun's radiation. Which stage does this evidence describe, and what can vary at Earth?)
3. **Fusion in the Sun's core releases energy, and it reaches Earth as radiation.** (In the MAIN SEQ SUN stage, what releases energy, and in what form does that energy reach Earth?)

TEST THE MODEL (SAMPLE ANSWERS)

- The model leaves out how energy moves through the Sun's layers before it is emitted as radiation.
- The model leaves out the exact timing and changing strength of solar flares and the 11-year sunspot cycle.

The loop tracks recycled shed gas, not the Sun returning to an earlier life stage. A white dwarf remains after the red giant's outer gas is shed and can mix into later gas clouds.