03 - The Stars: Stellar Evolution

Content Area: **Science**
Course(s): **Astronomy**
Time Period: **Semester 1**
Length: **6 weeks**
Status: **Published**

Standards

	Patterns
	Analyzing and Interpreting Data
	Cause and Effect
	Asking Questions and Defining Problems
	Engaging in Argument from Evidence
PS4.B	Electromagnetic Radiation
	Obtaining, Evaluating, and Communicating Information
	Stability and Change
	Developing and Using Models
	Energy and Matter
	Scale, Proportion, and Quantity
ESS1.A	The Universe and Its Stars
HS-ESS1-3	Communicate scientific ideas about the way stars, over their life cycle, produce elements.

Enduring Understanding

- Black holes are created by the death of massive stars.
- Star composition can be determined by spectral analysis.
- The HR diagram is used to compare stars.
- Stars have a life cycle.
- Elements are produced during the life cycle of a star.
- The sun is a small-medium middle aged star.

Essential Questions

1. What does the night sky tell us?

2. What is the source of the sun's energy?
3. Is the sun special?
4. How big and how hot are stars? How do we know?
5. What is the fate of our sun?
6. Do black holes go around vacuuming up the universe?

Knowledge and Skills

Knowlegde:

- The solar system around the sun consists of terrestrial and jovian planets and interplanetary debris.
- The life cycle of: A massive star and a star like our sun.
- HR diagram
- Black holes, Supernovae, Neutron stars
- Absorption and emission spectra
- Parts of the sun
- Composition of the sun
- Sunspots
- Fusion
- Spectral classes
- Binary stars

Skills:

- Analyze star spectra to determine composition
- Diagram the life cycle of stars
- Explain how black holes form and how we know they exist
- Compare and contrast stars using the HR diagram
- Analyze absolute and apparent magnitude data
- Interpret star wheels and star applications

Assessments

https://docs.google.com/document/d/1wR7bQF-8AQoRrt0g4C3hKja0yjwDjC9_BiAmONWbTcI/edit?usp=sharing

Modifications

https://docs.google.com/document/d/1ODqaPP69YkcFiyG72fIT8XsUIe3K1VSG7nxuc4CpCec/edit?usp=sharing