



Element Production in Stars

Introduction

Where did the elements that form matter on Earth originate? These elements originated from stars. Stars produce elements in their cores, through the process of fusion. At different stages of a star's life cycle, different elements are produced. The number and types of stages of a star's life cycle are dependent on the mass of the star.

Task

Your task is to research, analyze, and describe how elements are created by stars. Once you have finished your research, your group will write a report summarizing your findings.

Process

Use your resources to answer the following questions.

1. Where did the "light" elements come from and what is their role in star formation?

2. Describe the stages of the life cycle of stars of average mass, noting what is produced or consumed at each stage. What are some heavier elements produced in stars, and by what process did they form?

3. Identify the stages of the life cycle of stars of greater than average mass, noting what is produced or consumed at each stage. How are elements heavier than iron and nickel formed? What type of star creates them?

Element Production in Stars *CONTINUED*

Report

Once you have completed your research, prepare a report about the life cycles of stars and the elements they create at different stages. The report should be 3-5 pages and should discuss how the major evolutionary patterns of stars allow for the production of a variety of elements.

Resources

Many resources can be used to assist your research. These include journal articles, websites, and scientific news and magazines. You might also visit a university, science museum, or a laboratory or interview an expert in the field.

Evaluation

Read the following rubric to see how you will be scored on your research and presentation.

Criteria					Points
	0	5	10	15	
Task	The tasks were not completed.	Some effort was made to complete the tasks, but the major ideas are missing.	The tasks were completed but some information was omitted or incorrect.	The tasks were completed with great attention to detail.	
Process	The process was not followed.	The process was begun but not all questions were answered.	The process was followed but some answers were incorrect.	The project showed thorough research and a deep understanding of the topic.	
Report	There was no attempt to create report.	There was minimal effort making the report.	There was good material and ideas in the report.	The report was excellent, and showed knowledge of the topic.	
Total Score					