



The Energy Sources of Stars

Evolution of Stars. Activity 7

Classroom Activity

Material List:

- Worksheet

Outline

By using computer animations you will explore two main energy production cycles of stars to understand how hydrogen is converted into helium and energy is released.

Procedure:

Step 1. To Do:

Watch the *ClassAction* animation *Sun and Solar Energy/Proton-Proton Animation* and answer the questions:

How many protons are involved in the cycle? _____

How many protons are needed to create one helium-4 nucleus? _____

What kind of particles and radiation (taking into account the annihilation of the positron) are released? _____

Step 2. To Do:

Watch the *ClassAction* animation *Sun and Solar Energy/CNO Cycle Animation* and fill the worksheet table. First line is already filled.

Table. CNO cycle steps

Step	Input	Product	Released
1.	proton, carbon-12	nitrogen-13	gamma ray
2.			
3.			
4.			
5.			
6.			

The Online Observatory collaboration consists of the following partners:

Baldone Observatory, Brorfelde Observatory, Cardiff University, Harestua Solar Observatory, Helsinki Observatory

Assessment:

Answer the questions:

1. Answer in details what are the similarities and differences of both cycles?

2. Energy in the central part of stars is released as gamma rays. Why the stars radiate mostly the light and heat? _____

3. Which cycle is dominant in our Sun? _____

4. Which element in stars become less abundant and which – more plentiful? Can this continue forever? _____
