# **LESSON PLAN**

# Subject: SCIENCE - Chemistry

**Topic:** Nuclear reaction in the SUN

Age of students: 17

Language level: Intermediate

Time: two hours

## **Content aims:**

After completing the lesson, the student will be able to: Describe three types of nuclear reactions. Distinguish fusion, fission and radioactive decay reactions. Explain how the sun energy is produced during nuclear *fusion*.

## Language aims:

After completing the lesson, the student will be able to:

Apply the correct scientific language.

Discuss what would happen if the amount of light reaching the Earth from the sun were cut in half. Analyze using solar energy.

## Pre-requisites:

- Sun structure (astronomy)
- Models of Atom structure
- Chemical reaction
- Chemical elements and their characteristics and position in Periodic Table
- Different type of Energy

## Materials:

- Books
- Computers with internet access
- Video Discovery Science: "Savage Sun"

## **Procedure steps:**

## TEACHER activity:

A- Review with students what they know about the three types of nuclear reactions—fusion, fission, and radioactive decay. They should know that most of the sun's energy is produced during nuclear fusion reactions, which convert hydrogen atoms into helium

B- Supporting discussion and observation with student after the video and the internet research

## STUDENT activity:

A- Watching the video

B- Research using the Internet or other sources to investigate the reactions that occur in fusion, fission, and radioactive decay reactions.

C- Have your students used these and other resources to work in group and complete a map comparing and contrasting fusion, fission, and radioactive decay?



The Lesson will be take place in class

# **Attachment :**

#### Scheme proposed for working time in class

TEACHER activity: 30 MINUTES STUDENT ACTIVITY: A 30 MINUTES C 20 MINUTES D 40 MINUTES

## Materials that could be used as homework:

#### **Questions:**

- 1. What would happen if the amount of light reaching the Earth from the sun were cut in half? Predict what the climate and life would be like here on Earth. How would humans respond to this change?
- 2. Most of the sun energy is produced from fusion reactions, while nuclear power plants use fission reactions to produce their energy. Compare and contrast nuclear fission and nuclear fusion. Name at least three ways they are similar and three ways they are different.
- **3.** The use of solar energy has not caught on like many people had envisioned when it became popular in the 1970s. What are some of the drawbacks to using solar energy as a primary source of energy in homes and businesses, and how could they be overcome?

#### Assessment grid

The students could be evaluated on their diagrams, models, and presentations using the following three-point rubric:

**Three points:** diagram effectively compares and contrasts the three types of nuclear reactions; model clearly and accurately illustrates how group's assigned reaction works; presentation clear, well organized, and reflects excellent speaking skills

**Two points:** diagram adequately compares and contrasts the three types of nuclear reactions; model lacks clarity; presentation clear but speaking skills lacking

**One point:** diagram inadequate; model lacks clarity; presentation clear but poorly organized; speaking skills lacking

