



# Nobel project

## Teacher sheet



**Location:** ESRF

**Duration:** 1 ½ hours

**Level:** Last two years of secondary school, with a specialization in science.

**Groups:** 3 groups of 4 students

**Scientific supervisors:** 2

## Content

This project is focused on the use of knowledge and skills acquired on radiant energy. The aim of the project is to make the students use a scientific approach, based on their skills and knowledge, in order to solve with a scientific issue. Students are given a document to assist them. Scientific experiments are necessary. In the end they are supposed to reach a conclusion.

## In the curriculum

### Observe

Electromagnetic waves
Colours of objects
Absorption, diffusion, transmission
Light-matter interaction
Energy levels
Energy of photons
Extract and use information coming from the analysis of spectra

### Understand

Quantum emission and absorption
Photons and light waves

### Create and innovate

Scientific and technological culture, science-society relationship
Scientific occupations

## Transversal skills

Searching, extracting and organizing important information found in a document, a situation or an experiment.  
Taking initiative, using critical thinking.  
Thinking about a new situation in accordance with one's acquired knowledge.  
Teamwork.