Suggestions to Teachers
(Mouchot and the solar cooker)

Expected results

After the lesson, the students are expected to:

1. Describe the device, which was constructed by Mouchot, in order to meet his personal everyday needs.

2. Construct an experimental device, which is a simulation of the Mouchot's solar oven, in order to experiment with it and interpret its function.

3. Locate the principles of operation : a) Mouchot's solar oven and solar steam engine b) the solar ovens and solar steam engines of the current technology.

4. Write the prevailing reasons for Mouchot's scientific research which call for the exploitation of solar energy of this time and today.

5. Construct solar ovens and to organize an exhibition with their constructions.

6. Demonstrate that Mouchot's research provided a solution to a social problem at his time and generally, the social needs indicate and sometimes define the field of the scientific inquiry.

7. Describe the device, which was constructed by Mouchot and won the first award in the exhibition of Paris, and identify its innovation, based on the narration.

8. State the reasons indicating the necessity of the exploitation both of the solar energy and the renewable resources nowadays.

9. Distinguish the conventional from the renewable resources of energy.

10. Investigate the science characteristics and the ways science develops in the Mouchot's story as well as the activities of the lesson, according to the McComas' list.

11. Demonstrate the relation between the science, the society, the economy and generally the politics.

12. Demonstrate: a) that science progresses through research, but its progress could decelerate or stop by various obstacles b) the diachronism between the social demands and the correlating scientific questions.

About the activities of students

The proposed students' activities are indicative and they aim at the accomplishment of the above expected outcomes. Moreover, the teacher may choose some of them for the teaching process in relation to its aims, the needs of students and the available time. Finally, she/he can create her/his own activities.

About the emergence of the characteristics of science in the narration, these characteristics are quoted in the website, comprehensively (in classification of the stories by NOS).

About the locating of the characteristics of Nature of Science in the proposed activities, indicatively, we can quote the following:

A) In activity 1 the cases 1, 2 and 5 concern the characteristic of Nature of Science: “There are historical, cultural, and social influences on science”, but case 4 concerns the characteristic: “Science is a highly creative endeavor”.

B) The activity 2 concerns the characteristics of Nature of Science: a) “Science and technology impact each other, but they are not the same” and b) “Scientific knowledge is tentative but durable”.

C) The activity 3 concerns the characteristic of Nature of Science: “Science and technology impact each other, but they are not the same”.

D)The activity 4, case 2 concerns the characteristic of Nature of Science: “Scientific knowledge is tentative but durable”.

E) The activity 5 concerns the characteristics which are quoted in the previous activities: 2, 3, 4 and the next activity.

G) The activity 6 concerns mainly the characteristics: a)“Science and technology impact each other, but they are not the same”, b) “Science demands and relies on empirical evidence” and c) “Science is a highly creative endeavor”.

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