Working document

Overview of the learning situation: Design of a planetary

Pedagogical intention:
Allow the student to absorb the relative movements of the Moon and the Earth in relation to the Sun, to grasp the characteristics and to begin to define the concept of "universal gravity". The student will get there by immersing him/herself in the steps of the design process of a planetary.

Target audience:
1st cycle of secondary school

Class time required:
4 - 75 minute periods

Types of evaluation possible:
Direct observation, the student's work in the design booklet and the planetary prototype can easily allow the teacher to judge the development of competencies 1 and 3. (*Criteria: respect for terminology, rules and conventions suitable for science and technology in the production of messages)*.

An evaluation grid of competency 1 is supplied as an example.

Targeted disciplinary competencies:
Competencies 1 and 3 (criteria: respect for terminology, rules and conventions suitable for science and technology in the production of messages) are targeted. The student must take into account the constraints associated with the design of his planetary, research information allowing him to make judicious design choices, to justify his decisions and to adjust his steps in relation to difficulties encountered. He must also communicate his ideas and his solution using scientific terminology and conventions suitable to diagramming.

Targeted cross-curricular competencies:
To implement his creative thinking is at the heart of the task. The student must work independently and with an open mind to embark systematically in the creative process. To get there, he will have to absorb all the elements of the situation including the scientific concepts, the material constraints and the technological concepts. He must also be aware of the resources he has, like imagination, anticipation and the ability to accept the discomfort inherent to the creative process.

Broad Area of Learning
ENVIRONMENTAL AWARENESS AND CONSUMER RIGHTS AND RESPONSIBILITIES
Development axis: awareness of the environment

Contents of targeted training:

Earth and space

- The solar system;
- Lunar phases;
- Eclipses;
- The cycle of day and night.

Technological World

- Specifications;
- Principles and construction diagrams;
- Simple mechanical functions;
- Mechanisms for transmission of movement.

    - **Strategies:** find the constraints and the elements important to the resolution of the problem, explore different solution tracks and anticipate the results of one's choices.

    - **Techniques:** diagramming, assembly and safe usage of tools.

    - **Attitudes:** initiative, consideration of the original solutions, independence, perseverance, sense of a job well done, effort and effective cooperation.

Community resources:

The Planetarium, the tools used to teach science and inventions of all kinds are all resources allowing this learning situation to be fleshed out. This activity could be enriched by giving the students specific phenomena to model, some being more complex than others. The task could thus offer an interesting occasion for pedagogical differentiation.