

Working document

OVERVIEW OF THE TASK
MUSIC!

Target audience:	2nd cycle
Type of work:	Individual and group
Class time:	About 5 hours

Educational Aim

Initially, the students will carry out a scientific investigation to discover what produces high or low sounds. Using specific exploration, instrumentation and communication strategies, they will discover scientific concepts related to sounds. This situation puts the accent on considering a single variable at a time. Next, the students will discover the constraints related to producing an everyday object. While producing the object, they will become familiar with various tools and procedures and will have to make the most of qualities like attention to detail, accuracy and perseverance. Having made the musical instrument, they will reflect upon the sounds it produces so they can question the scientific concepts. Finally, the teacher will carry out a number of demonstrations to explain the phenomenon of sound waves in order to provide the students the knowledge necessary to the efficient conclusion of their experiments.

Disciplinary competencies

- ❑ C-1 Suggests explanations or solutions to problems of technological or scientific order
- ❑ C-2 Makes the most of the tools, objects and procedures of science and technology
- ❑ C-3 Communicates using the languages of science and technology

Targeted cross-curricular competencies

- ❑ Adopts effective work methods
- ❑ Uses creativity

Broad area of learning	**Orientation and entrepreneurship** Becomes familiar with the strategies related to a project
Involved world	Material world
Essential knowledge	○ Sound waves ○ Sound energy ○ Functionality of objects built ○ Use of simple instruments of measure ○ Use of tools ○ Design and fabrication of instruments, tools, machines, structures, models and simple circuits

Strategies	❑Exploration strategies Become aware of preliminary representations Anticipate the results of their work Call upon different modes of reasoning (e.g. induce, deduce, infer, compare, classify) Have recourse to empirical methods of research (e.g. touching, analysis, exploration using one's senses) ❑Instrumentation strategies Having recourse to various observation techniques and tools Take into consideration the constraints in play in the resolution of the problem or fabrication of the object ❑ Communications strategies Sharing information Confronting different explanations or possible solutions to a problem to evaluate its pertinence (e.g. plenary session)

Possible evaluation criteria

Science and technology – C-1

❑ Adequate description of the problem from a scientific and technological perspective.
❑ Use of methods appropriate to the nature of the problem.
❑ Elaboration of pertinent explanations or of realistic solutions.

Science and technology – C-2

❑ Appropriate use of instruments, tools or techniques.
❑ Design and fabrication of instruments, tools or models.

Science and technology – C-3

❑ Correct transmission of information of a scientific or technological nature.

Adopts effective work methods

❑ Perseverance and tenacity in action

Uses creativity

❑ Originality of the relations between the elements (experimentation part)

Global context

Initially, the children will plan a few experiments to illustrate their interim explanations. The teacher will ensure, by individual and group interventions, that the students isolate one variable at a time in order to verify their initial explanations.
Next, the students will build a musical instrument using wood, pieces of hardware, hot glue and hair clips. They will use everyday tools like hammers, screwdrivers, mitre box, etc.