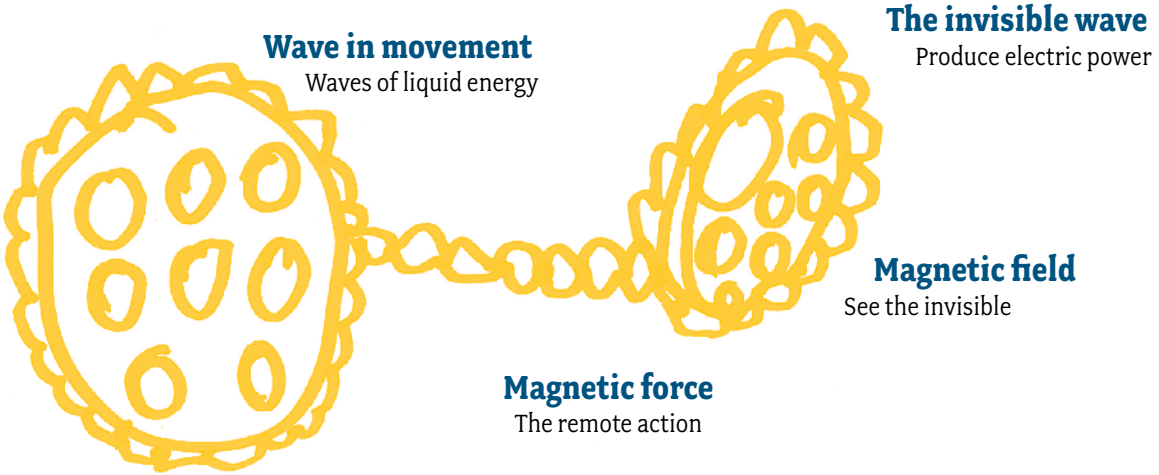
The "Base camp" of the Atelier *From Wave to Wave*, situated within the Enel Hydroelectric Power Station as a place symbol of man's intelligence and work, is a space of research and experimentation where investigation focuses are water, its features, its use, how it produces energy through movement and electric power produced by movement and electromagnetic fields.

Base camp – 1000 m AMSL

The learning environments of the Base camp have been planned so as to support interactive investigations and experimentations on an individual and group basis so as to provoke and stimulate wonder, curiosity and in-depth studies.
Every learning environment is organised around a concept or a cognitive problem and proposes different tools, materials, questions, encounters, and accesses.
The environments don't orient towards only one path or only one solution but they allow to manipulate scientific phenomena in different ways fostering the construction of individual and group reasons.



Children and teenagers of all schools can visit the Atelier and explore the environments split in small groups.
The learning groups are composed of children, teachers, educators and operators.
The involvement of the teachers in all the different phases of the path is essential: by preparing the teenagers for the meetings, by individuating at school the themes and the interests of the experience (by asking some questions), by participating in the work of the Atelier and in the following developments at school.

The experiences started within the Atelier can suggest future projects to develop at school or they can become an opportunity to come back to the Atelier and continue the in-depth analysis encountering the other environments.
Strictly related to the idea of spread-out atelier, the Atelier From Wave to Wave offers different types of explorations and investigations of the micro-system (the inside environment in the Base Camp) and/or of the macro-system (the Power Station and the External Camps), in a relation of reciprocity and exchange between the systems.

Educational proposals

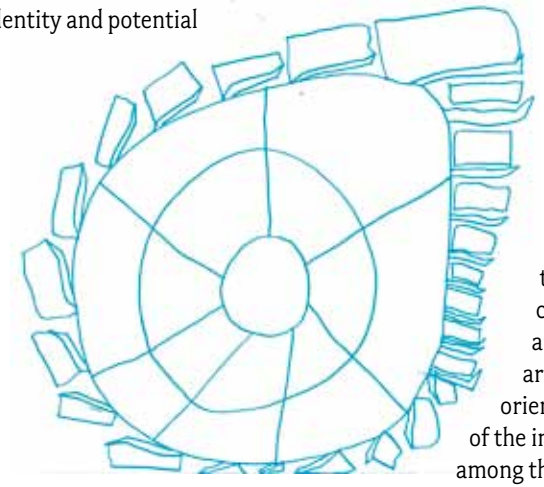
Meetings last min. 2 hours and are articulated in three moments:
1. conversation in the large group with the atelieristas to find out the areas of research and share knowledge, hypothesis and theories
2. exploration in the small group in the learning environments along with the atelieristas
3. final assembly to share and exchange the different explorative experiences

Exploration paths

first encounter with the Atelier environment so as to understand its identity and potential

In-depth analysis paths

an experimentation of the possible concepts arising in the different environments



Research paths

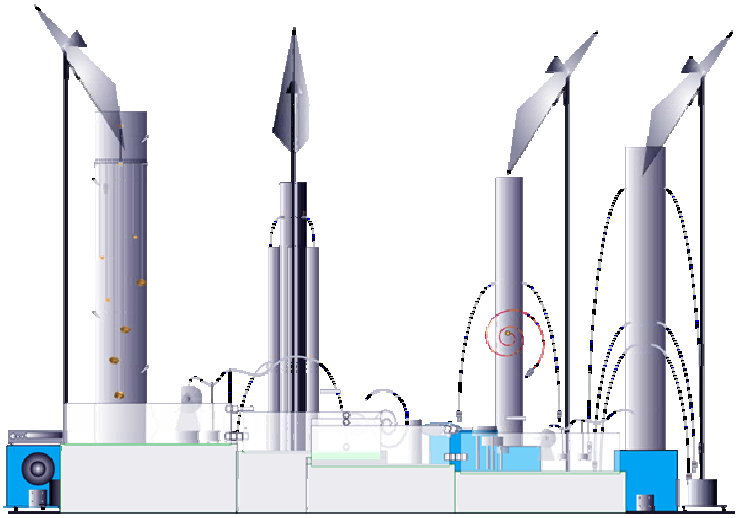
the concepts handled can cross the different environments and offer more complex and articulated in-depth paths, oriented at the discovery of the interdisciplinary connections among the phenomena

Furthermore groups can enrich their path
booking the guided tour of the Enel Hydroelectric Power Station

Educational proposals

Wave in movement - Wave of liquid energy

The water, as a matter, supplies a learning opportunity to explore, research and experiment its dynamics and its features: fluidity, pressure, output, movement, sound, all elements that are connected and interacting.
Children and adults have the opportunity to build relations between the micro-system (the environment *Waves of liquid energy*) and the macro-system (the natural environment and the system of production of hydroelectric power) exploring how the matter water turns into energies.



Water

The movement of water

The flow moves materials and energy, it creates variable paths in the different channels.
The possible exploration and learning processes cross concepts like form, containment, capacity, speed and sonority.

The power of water

The fall, the height, the power, the lifting, the inclination of the pushes are all possible learning and research paths.
It will be possible to investigate features like weight, capacity, pressure, density, temperature.

The shape of water

Part of the water landscapes is dedicated to small children, with lower basins so as to allow them to move easily and to take choices and carry out explorations in full autonomy.
During children's explorations hands are an investigation tool regarding direction, modifiability, power, speed.

Astonishment, wonder, emotions

Water, light and materials together generate wonderful, enchanting effects and become learning mainsprings for new explorations.

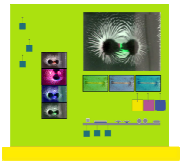
Approaches and arising concepts

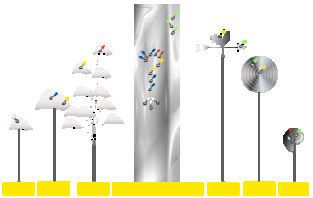
Magnetic force - The remote action

The magnetic force is visible to our senses only through the effects produced during the interaction with many materials.
Magnetic energy, through its interaction with ferrous objects and with other magnets, involves our senses and our perceptions both at physical level and at visual level making the phenomenon mysterious and appealing.

Magnetic field - See the invisible

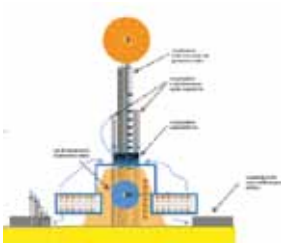
Magnetic fields normally cannot be seen but they can easily be detected and made visible; they can be different as for shape, intensity and dimensions according to the sources generating them.
These differences experienced by children, teenagers and adults produce suggestive visual images of the lines of force.
To enrich both the perceptive and the interactive qualities children and adults can use tools that amplify the visualisation of the magnetic fields.





The invisible wave - Produce electric power

As in the case of the magnetic field the electric power is invisible and we can detect its presence and grasp its features only through the effects produced. The magnetic field plays a fundamental role in the transformation process of the mechanical power of movement into electric power.
Children and adults can work together on a variety of phenomena generated by the production of power, made visible by detectors.



Electricity - magnetism

The magnetic field

The construction of the alphabets of the magnetic fields (the shapes of the magnetic fields), the relation between the dimension and the form of the magnetic field and its intensity, the interaction of the magnetic fields, the connection among magnetic energy and materials, magnetic field and distance, the measure of the propagation of the magnetic energy, the energy and the visibility in 2D and 3D, the multiple magnetic fields (interacting magnets and polarities), the visibility in the magnetic fields and the chromatic visualisations.

The electric wave

The power and the movement, the connection between power and visualisation of the wave. Speed, power, intensity of the energy produced in relation with the physical effort and the movement strain of the actuators. Frequency and intensity of the wave and its digital visualisation. Quantity, frequency and intensity of the wave and its sonority.
Absorption, preservation, mobility, energy transferability.

The magnetic force

Repulsive and attractive powers, map of the invisible, measurement, numeration, mathematics, topology, body as measurer, power and weight, balance.

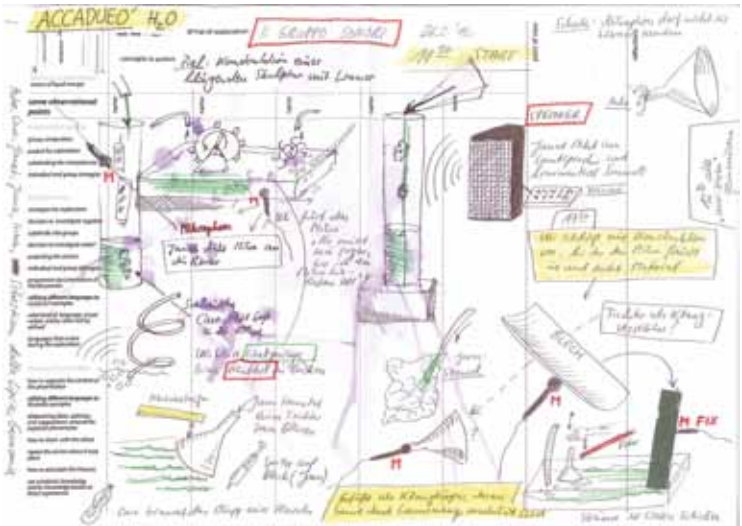
Magnetic sculptures

The magnetic sculpture is an installation, which allows to reconnect together the concepts explored in the four learning environments that are offered as encounter and connection areas between the scientific and the aesthetic dimension of the explored phenomena.

Approaches and arising concepts

Camp 1 – 1000 m AMSL

Camp 1, inside the National Park headquarters, is the Atelier interface: a space dedicated to welcoming, research, documentation, where the ideas, the projects and the experiences are offered as a resource to all visitors.



Observational form realized by Sebastian, German teacher

Camp 2 - 1240 m AMSL

Camp 2, at Rimale, is an immersive path in a wonderful wood of long-stemmed beeches to understand the relation among the natural elements like wind, water, sun, trees and the phenomena linked to them and to the research of nature poetics.

Camp 3 - 1280 m AMSL

Camp 3, situated at Presa Alta, is an encounter with the vehemence, the beauty and the expressiveness of the Ozola stream in the research on an empathic relation with water and its metamorphosis.