

<b>ACTIVITY 8</b>	The Tesla Coil
<b>The aim of the activity</b>	The aim of the experience is to deepen some concepts regarding the transmission of electricity and wireless technology, referring above all to the historical context and the relationships between the inventors of the time.
<b>Places where the event can be held</b>	Classroom, Hydroelectric energy museum
<b>Age group for the activity</b>	9-11

<b>A. BEFORE OUT-OF-SCHOOL LEARNING ACTIVITY</b>	
<b>Educational tools</b>	Ppt presentation, historical videos and photos, batteries, copper wire, some led lights.
<b>Method, technique and strategies</b>	Participatory lesson, practical activity.
<b>PRACTICE</b>	Introduction to the concept of electricity and electric circuit, with the bulding of some simple circuits.
<b>Introduction of the activity</b>	<p>Before the workshop, a lesson at school of historical introduction to the topics that will be covered is required, in order to make the most of the experience. All the lessons can be supported by a PPT presentation and online material, like photos or videos.</p> <p>This preliminary lesson introduces you to the concept of an electrical circuit and electrical lighting. We therefore start with a scientific introduction, which explains what a circuit is, how it works and what it is used for (we presents only simple circuit formed by a battery and a light bulb).</p>
<b>Development of the activity</b>	<p>The material is distributed to the pupils to try themselves to create a circuit to turn on a LED light bulb. They can experiment with the material: try adding batteries, or led lights, try changing polarity etc. In this way they can familiarize themselves with the concept of electricity and imagine what an electric grid is, necessary to turn on both public and private lights in the city.</p> <p>After this experimental part we start with a story using the storytelling technique. The evolution of electric lighting is told: oil lamps, gas lamps, the work of those who, every evening and every morning, had to turn the street lamps on and off, the explosions of the gas street lamps, the</p>

	innovation brought about by technology etc. This part can be supported by a presentation of historical paintings and photos.
<b>Evaluation of the activity</b>	The lesson can be concluded with a task: draw a drawing that represents an illuminated street from the 1700s, with oil or gas lighting. It's possible to evaluate that work.

<b>B. IN THE OUT-OF-SCHOOL LEARNING ENVIRONMENT</b>	
<b>Educational tools</b>	PPT presentation, historical videos and photos, a homemade Tesla Coil, neon lamps
<b>Method, technique and strategies</b>	Participatory lesson, storytelling, scientific representation
<b>PRACTICE</b>	Build some simple electrical circuit
<b>Introduction of the activity</b>	The experience begins with a historical introduction. All the historic introduction is supported by historical photos and videos. In the previous meeting, the story ended at the beginning of the exploitation of electricity for public lighting. We start again from this point, showing (live or through online images) some prototypes of old light bulbs. We continue with the history of the light bulb, starting from the arc one up to the filament light bulb. We then moves on to talk about Tesla and his main inventions, his disputes with other inventors of the time (including Guglielmo Marconi, with whom he contends for the invention of the radio). Finally, we move on to tell the last part of Tesla's life, which sees his slow decline and ruin, up to a lonely death in poverty.
<b>Development of the activity</b>	After this storytelling part begin the scientific part of the workshop, talking about the Tesla Coil. The invention is presented: its use, what it is, what are the necessary components, how it works, always with simple and effective words. In this regard we also talk about transformers and their usefulness when alternating current is used. The experience ends with the representation of the use of the Tesla Coil, with the wireless switching on of neon lights and electric discharges. It is important in this phase to maintain a safe distance between the coil and the pupils to avoid any kind of risk.
<b>Evaluation of the activity</b>	Behavior during the activity is evaluated.

C. AFTER OUT OF SCHOOL LEARNING ACTIVITY	
<b>Educational tools</b>	Test with close or open answer questions
<b>Method, technique and strategies</b>	Participatory lesson, collective discussion
<b>PRACTICE</b>	Collective discussion about what learned.
<b>Introduction of the activity</b>	Recall the concepts learned.
<b>Development of the activity</b>	<p>Back to school it is appropriate to reflect on what has been experienced. You can propose a written assignment with open questions, or encourage a collective discussion. Technological, ethical, industrial, financial topics are touched upon, with questions such as:</p> <ul style="list-style-type: none"> <li>• What is the benefit of alternating current compared to direct current?</li> <li>• How does wireless technology improve everyday life?</li> <li>• How much weight do information media have in scientific progress?</li> <li>• Is it more important to have a good idea or the ability to exploit it economically?</li> <li>• Is scientific and industrial progress always positive?</li> </ul>
<b>Evaluation of the activity</b>	Evaluation of the answers.

