STEP BY STEP
Collection of Best practices

Partner/country: Agrupamento de Escolas de Barcelos / Portugal

Title:	**Programming and Robotics– Traffic Lights**
Content/ Subject areas (*taged with modules*):	Computational Thinking Mathematics Code (M-Blocks and Arduino) Electronics Algorithm
Learning objectives / competences	Like other educational situations, educational robotics activities can be described and analysed referring to the ''six teaching and learning paradigms''. Creation and Practice: Two facets of creation of an educational robotics activity are pointed here. One refers to the building of the electronic parts, and, the other, to the writing of a program. Exploration: To do this, the learners can explore some didactic materials (e.g. reference guides, help on line, ...). Experimentation: The creation of original electronic parts mainly depends on the flexibility of the materials. Imitation and Reception: But, the learners could also build their electronic parts or automate from their imagination with salvage of waste products or with materials such as kits sold by M-Bot or Lego.

Description of the activity	We are going to connect three LEDs that will turn on and off to build our own traffic light. • Assemble a multi-LED circuit to build a traffic light. • Use digital output blocks with different pins. • View the traffic light on the screen of our PC. • Learn to change the stage scenery.
Description of the process teaching/ learning strategies used	Use multiple digital outputs in the same program. Assembling an electronic circuit a little more complex. Change the background of the stage and adapt our objects to it. Introduce the concept of algorithm as a sequential procedure to solve a specific problem
Types of assessment	Self assessment and pair assessment
Materials and tools	Arduino ; Breadboard ; Led´s ; Resistors ; Wire´s Software MBlock and Arduino Computer
Timing and learning environment	2 hours
Why do you consider this practice is innovative?	Using programming and robotics in schools: • we enhance cognitive development and creative thinking in a fun and engaging way. • It's an effective way to get students in touch with programming. • Kids and teens find fun robotics. • It provides skills that can be very helpful in the future. • It is advisable for all types of children.
Where did you find it? Internet address	https://www.prometec.net/semaforo/