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| **TITLE: AUTOMATIC LIGHT** |

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| **LEARNING SCENARIO** |
| ***School:***  | Duration (minutes): | 40 |
| Teacher:  |  | Studentsage: | **12 -13** |

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|  Essential Question: |  |

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| Topics: |
| * Arduino Programing Card and Block coding (Mblock)
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| Aims: |
| * They will make the automatic light according to light intensity.
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| Outcomes: |
| * They will use sensors with Analog pins
* They will control Leds acoording to data come from sensor.
* They will code Arduino with Mblock.
* They will use conditional Code (IF)
* They will use loop Mblock Code.
* They will read data come from sensor with Mblock Code.
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| Work forms:* Work in pairs

Methods: |
| Presentation and Project based Learning |

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| **ARTICULATION** |
| Course of action (duration, minutes) |
| **INTRODUCTION** |
| **Talk about the final project:****We will make an automatic light works according to light intensity. It will turn on when light of environment decrease and it will turn off when light of environment increase.** |
| **MAIN PART*** Give information about LDR

What is LDR? It stands for Light Dependent Resistor or Photoresistor, which is a passive electronic component, basically a resistor which has a resistance that varies depending of the light intensity.How is it Works?The resistance is very high in darkness, almost high as 1MΩ but when there is light that falls on the LDR, the resistance is falling down to a few KΩ (10-20kΩ @ 10 lux, 2-4kOmega; @ 100 lux) depending on the model.* Remind the analog pins

The ATmega controllers used for the Arduino contain an onboard 6 channel (8 channels on the Mini and Nano, 16 on the Mega) analog-to-digital (A/D) converter. The converter has 10 bit resolution, returning integers from 0 to 1023. While the main function of the analog pins for most Arduino users is to read analog sensors, the analog pins also have all the functionality of general purpose input/output (GPIO) pins (the same as digital pins 0 - 13). |
| * **Let’s make automatic Light**
* **Set up this circuit with Arduino and other equipment**

C:\Users\user\Desktop\arduino lessons\LDR\Magnificent Leelo.png* Open Mblock and connect the Arduino
* Write this code:

C:\Users\user\Desktop\arduino lessons\LDR\LDR Kodlar.JPG**Video:**[**https://youtu.be/xrCGCbl0xuE**](https://youtu.be/xrCGCbl0xuE) |
| **CONCLUSION****We read the data come from analog pins and we used these data as conditions for another equipment’s working.** |
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| Methods | Work forms |
| *presentation interview**talk demonstration**work on the text role playing**graphic work**interactive exercise /simulation on the computer* | *individual work**work in pairs**group work**frontal work* |

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| Material |
| * Arduino and USB connection Cable
* Computer
* Led
* LDR
* BreadBoard
* 330 ohms Resistor
* 10K ohm Resistor
* jumper Cables
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| Literature |

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| **PERSONAL OBSERVATIONS, COMMENTS AND NOTES** |
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