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| **TITLE: BLINKING LED** |

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

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| Essential Question: |  |

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| Topics: |
| * Arduino Programing Card and Block coding (Mblock) |
| Aims: |
| * They make blinking LED Project. |
| Outcomes: |
| * They will understand the basic electronic circuit. * They will use digital pin and GND * They will use LED, Resistor, breadboard, Jumper Cable * They will control digital pin by Mblock Code * They will use loop code. |
| Work forms:   * Work in pairs   Methods: |
| Presentation and Project based Learning |

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| **ARTICULATION** |
| Course of action (duration, minutes) |
| **INTRODUCTION** |
| * Remind the digital pins.   Digital Pins: Digital pins on the Arduino are pins designed to be configured as inputs or outputs according to the needs of the user. Digital pins are either on or off. When ON they are in a HIGH voltage state of 5V and when OFF they are in a LOW voltage state of 0V.  In this lesson Digital pin will be use to control the led! |
| **MAIN PART** |
| * **Set up this circuit with Arduino and other equipment.**   https://twinspace.etwinning.net/files/collabspace/9/49/449/95449/images/b3d92ffe_opt.jpg  If you connect longest leg of LED to digital pin, You can control it.  At this time we connect it 9th digital pin to control it.  **TİP:**  **!!! If you want to check you circuit if it is correct, You can connect the longest leg of LED 5V. Because 5V always provide electrical current. But digital pin provide electrical current according to codes… So that you can control digital pin by coding, but not 5V!!!**   * Open Mblock and connect the Arduino * Write this code   https://twinspace.etwinning.net/files/collabspace/9/49/449/95449/images/b4f4cd4e_opt.jpg   * Upload the code to Arduino   If it does not work check the circuit!  **Video:**  [**https://youtu.be/q5DYN8tZu-o**](https://youtu.be/q5DYN8tZu-o)  **Discussion Question**  There are just 3 GND pins on the Arduino. Does it mean that more than 3 led cannot be turned on? |
| **CONCLUSION** |
| We use the 9th digital pin to control LED. If it is high that mean is voltage state of 5V, it turns on. If it is low that mean is voltage state of 0V, it turns off. |

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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 * BreadBoard * Resistor * Jumper Cable |

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| Literature |

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