	Technology and Digitalization **PAI Task 1 → Arduino Board (Criteria A and B)** **PAI Task 2 and 3 – Flowcharts – Arduino Program Structure – Examples with digital inputs and outputs. (Criteria A, B and C)** **PAI Task 4 → Written exam (Criteria A, B and D)**	Criterion A: FormAsses and SumAsses Criterion B: FormAsses and SumAsses Criterion C: FormAsses and SumAsses Criterion D: FormAsses and SumAsses
	Criterion A: Inquiring and Analysing Criterion B: Developing Ideas Criterion C: Creating the solution Criterion D: Evaluating	Name: Date:
• **Answers must be appropriately written and fully reasoned.** • **REVIEW at the end of each exercise.** • **The MYP spelling criteria will be applied in the correction.**		

Arduino UNO Board – Programming with Arduino

Goals:

Correctly analyse the main parts of Arduino UNO Board. Break down in order to bring out the essential parts of Arduino Uno Board.

Display information in a diagrammatic or logical form. Students build or construct clear and logical flowcharts that allow them to write a program on the Arduino UNO.

Students identify the different parts of a program written for the Arduino UNO board.

Students simulate and create simple programs that allow them to understand the operation and relationship between the Arduino UNO Board, the computer, and some of the simplest analog components, such as LEDs, resistors, LDRs, etc.

Assessment Criteria:

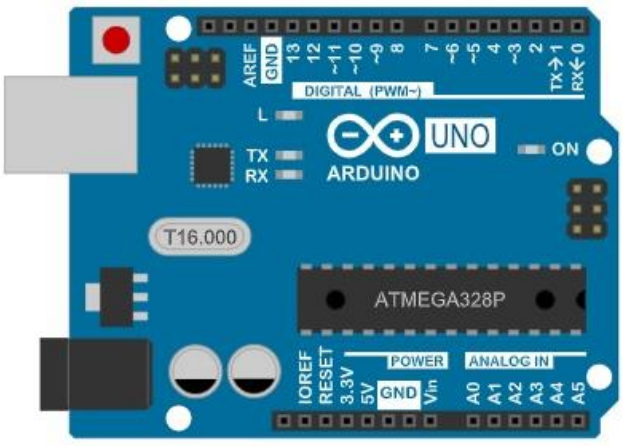
Formative assessment of Criteria A, B and C → through the activities proposed in this document.

Summative assessment of Criteria A, B and C → through a written exam exercise and workbook.

Formative and summative assessment of Criteria D → directly through the activities proposed in this document and in a written exam.

1- Perform the dynamic versions of tecno12-18 of points 1 to 7 (A).

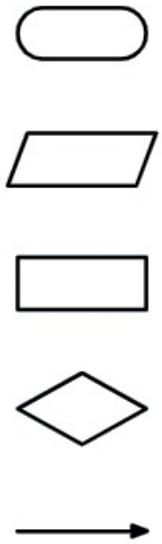
2- Elaborate a diagram or a drawing by freehand of the Arduino UNO board, indicating and identifying the most important parts. **Tecno12-18 Arduino → 2. The Arduino UNO Board**. (B)



3- Identify the fundamental parts of a program in Arduino UNO by recognizing and distinguishing its fundamental characteristics. **Tecno12-18 Arduino → 3. Programming the Board**. (A).

4- You must describe in detail the main elements of a flowchart to logically sequence the stages of a program. (A-B)

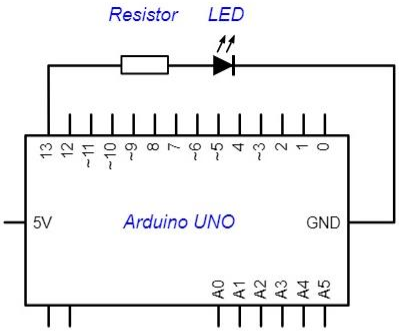
Basic symbols of the flowcharts



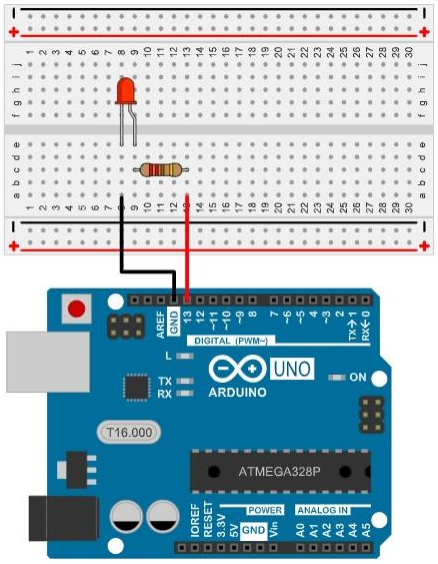
5- You must create your first program as detailed in Tecno12-18, demonstrating excellent technical skills when creating the solution. **Tecno12-18 Arduino → 4. Digital Outputs 1**. (C).

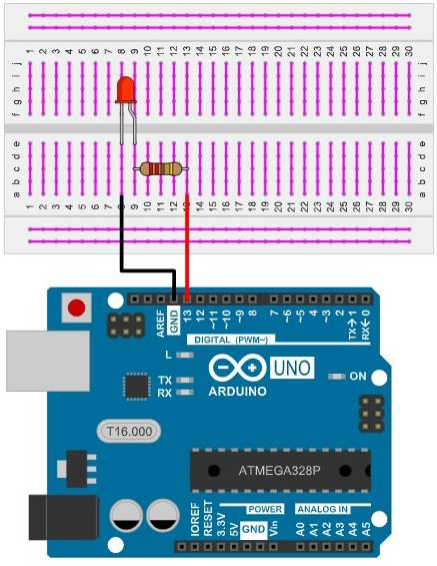
The practice will consist of blinking an LED every so often. To do this, you must include:

1. The flow chart.
2. The materials needed.
3. The electrical diagram.
4. The assembled circuit, indicating polarity and key aspects.
5. The program code.



Electrical diagram of the circuit.

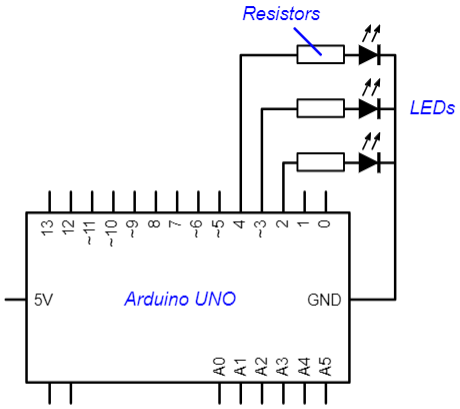




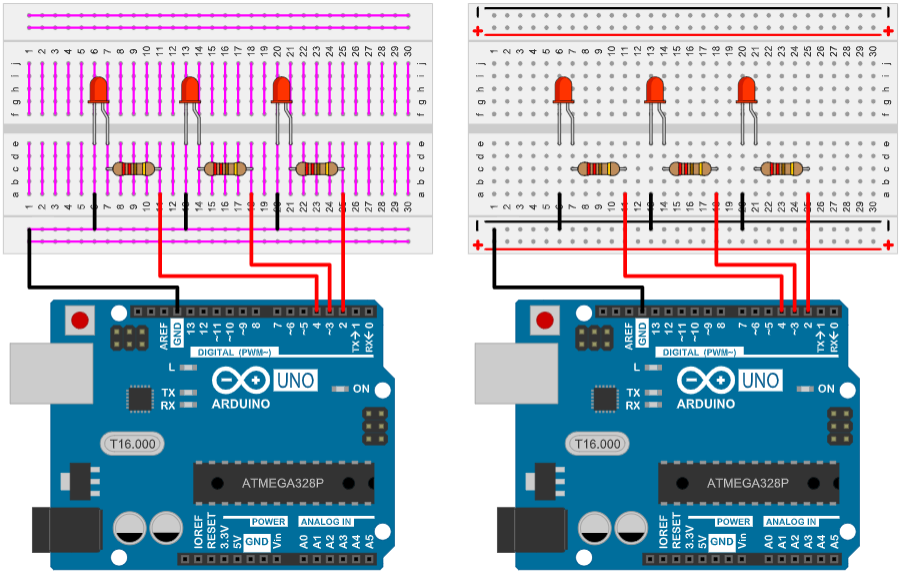
6- You must create a program that flashes 3 LEDs as is detailed in Tecno12-18, demonstrating excellent technical skills when creating the solution. **Tecno12-18 Arduino → 5. Digital Outputs 2**. (C).

The practice will consist of blinking three LEDs sequentially. To do this, you must include:

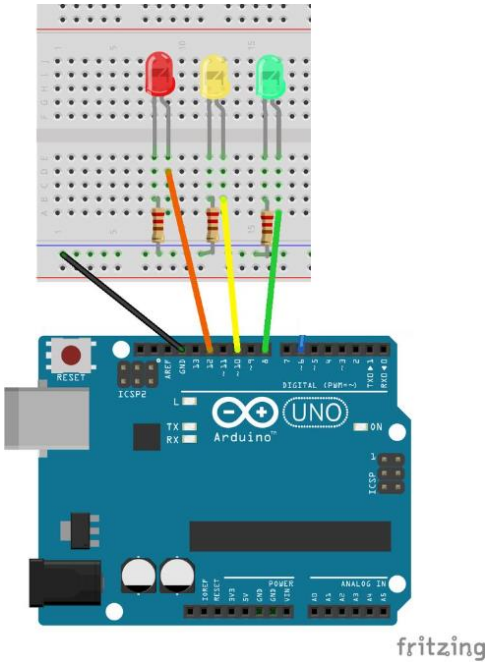
1. The flow chart, version 1, 2 and 3. .
2. The materials needed.
3. The electrical diagram.
4. The assembled circuit, indicating polarity and key aspects.
5. The program code.



Electrical diagram of the circuit.



7- You must create a program that simulates a traffic light demonstrating excellent technical skills when creating the solution. (C).



To do this, you must include:

1. The flow chart.
2. The materials needed.
3. The electrical diagram.
4. The assembled circuit, indicating polarity and key aspects.
5. The program code.

8- Next program