



# RESCUE MISSION



Co-funded by the  
Erasmus+ Programme  
of the European Union

Escape  Stay



IHK-Projektgesellschaft mbH  
OSTBRANDENBURG



Šolski center  
Nova Gorica

Cámara  
Zaragoza



# Escape Stay

**Making vocational education and training  
a first option - not a second choice!**

**[www.escape2stay.eu](http://www.escape2stay.eu)**



2020-1-DE02-KA202-007427

The European Commission's support for the production of this publication does not constitute an endorsement of the contents, which reflect the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.



Open license: This document is for free use under the Creative Commons Attribution-ShareAlike 4.0 International License. To view a copy of this license, visit

<http://creativecommons.org/licenses/by-sa/4.0/>

# RESCUE MISSION



You are on a guided tour in a local power generating utility with your class. Suddenly, an electric security door shuts down. There is only air for 30 minutes...

## Can you escape in time?

In this escape room you will immerse in

### **MECHATRONICS**

and cover the following related skills and typical tasks:

1. Hand coordination
2. Team-work
3. Communication
4. Thinking outside the box
5. Logic

After completing this escape room, your students will be able to:

- ✓ Reading blueprints
- ✓ Connecting wires
- ✓ Understanding mechanical principles
- ✓ Basic Software use
- ✓ Assembly
- ✓ Object association

*This is one of five free escape rooms you can play with your students to make vocational education career paths attractive.*

*Find all of them here:*  
[www.escape2stay.eu](http://www.escape2stay.eu)



### **RIDDLE OVERVIEW**

1. Electric Puzzle
2. Math Puzzle
3. PC Puzzle
4. Wood Puzzle
5. Unlocking the Box

### **CONTENTS OF THE BOOKLET**

Instructions for game masters	1
Preparation	2
Starting the game	3
Riddle overview & hints	4
Debriefing	9
Walk-through	10



## INSTRUCTIONS FOR GAME MASTERS

This booklet will provide you with all necessary information to implement the escape room and link all needed materials.

As a game master, you will introduce the game setting and aim to your group of players. You will be available in case they need help and provide them with hints that will guide them to find the solutions of the riddles and ultimately reach the goal.

Sometimes the Game Master has to interfere without being asked to avoid players working too long in the wrong direction or to prevent them from settling on a wrong solution. But not too much! Watch out for your body language and where you look in the room to avoid unintentional hints.

Remind players that they can use a hint – sometimes they forget or pride prohibits them from asking. Read the room and be flexible with the hints. You do not have to use the exact hints that are provided in the instructions.

*To find out more about your role as a game master, please have a look at the **Escape2Stay handbook** and our complete guideline here: [www.escape2stay.eu](http://www.escape2stay.eu)*



### GAME RULES

When introducing the Escape Room, make sure to:

- define the playing area and let the players know if there are any objects that are off limits. If the room is very full of material, mark objects that are not part of the game with a coloured dot.
- instruct them that they do not have to destroy/break any objects in the room. They will never need force to discover any clues.
- Set the time limit to 30 minutes and make sure that the players have an opportunity to see the time passing by placing a clock or a countdown visibly in the room.



### TIME FRAME

360 minutes	Preparation before playing for the very first time including reading instructions, preparing materials and getting familiar with the game
10 minutes	Introduction of the escape game to players
30 minutes	Estimated game time for one group
10 minutes	Resetting the room after one play-through



## PREPARATION

### ITEMS TO PREPARE

- Starter Kit for Arduino R3 Projects with Microcontroller, LCD1602 Module, Breadboard, 9V Battery, Servo, Sensors, Tutorial MA13
- Simple wooden box,
- Wooden sheet, around 3 mm thick from a hardware store/local wood supplier
- Two 4-digit locks. Write the numbers 1 & 2 on the first and 3 & 4 on the second. You will need to label all riddles and the players will obtain 2-digit codes from each riddle solution.
- **Riddle 1:** Arduino Starter Kit including:
  - Arduino UNO
  - Micro Servo
  - Pushbutton 2X
  - High resistor 2X (10kΩ)
  - A power source (USB cable or Battery)
  - Breadboard
  - Set of Jump Wires
  - Cardboard / Wood
- **Riddle 2:** Cardboard/wood puzzle pieces
- **Riddle 3:** PC or Laptop
- **Riddle 4:** Cardboard/wood
- Reward to put into the final box



You can find all instructions here:

[www.escape2stay.eu/rescue-mission](http://www.escape2stay.eu/rescue-mission)



### PREPARATION BEFORE FIRST PLAY-THROUGH

*Estimated time: 75 minutes*

- Reading instructions and getting familiar with the hints (45 minutes)
- Implement the preparations as described in detail in the instructions linked on the right.
  - **Riddle 1:**
    - Program the Arduino
    - Setup the electronics
    - Setup the servo
    - Print the schematic picture
  - **Riddle 2:**
    - Print the template and transfer the puzzle pieces on wood or cardboard. Assemble the puzzle.





- **Riddle 3:**
  - Download the compressed folder > extract it > open the Browser file named index > press F11 for full screen.
- **Riddle 4:**
- Set the two 4-digit locks to the following codes: **2842** and **3687**

## PREPARATION TIME TO RESET THE ROOM

*Estimated time: 10 minutes*

- removing traces and notes from previous group/play-through and hiding new hints (10 minutes)



## STARTING THE GAME

It is recommended to estimate **50 minutes for a play-through**, of which you take 10 minutes to brief the players, 30 to let them play, and 10 for a quick de-briefing. Ideally, you combine it with a more intense career counselling session before or after the escape game.

All puzzles can be solved individually and not in any set order. At the end the participants will combine the solutions of all the different puzzles to open the final box.

Here you can also find the solutions for the different puzzles.

After generally introducing your plans and motive to play the game with your students, continue with these steps:

- First, build groups of max. 6 players per group.
- Second, introduce the setup and the rules of the escape game.
- Finally, give them the story introduction and start the timer.

## INTRO OF “RESCUE MISSION”

Hello, I am a scientist assistant and I have a few problems I need your help with. I cannot find Maja; she is the greatest scientist in the whole milky way, also her flying zeppelin laboratory has crashed! I need your help figuring out what happened to her. I have recovered some pieces of the laboratory from the zeppelin crash. I hope you can use them to figure out what happened and where she is!

In the end, it is revealed that the scientist went on holiday and his assistant (game master) forgot this and was supposed to take care of the zeppelin.





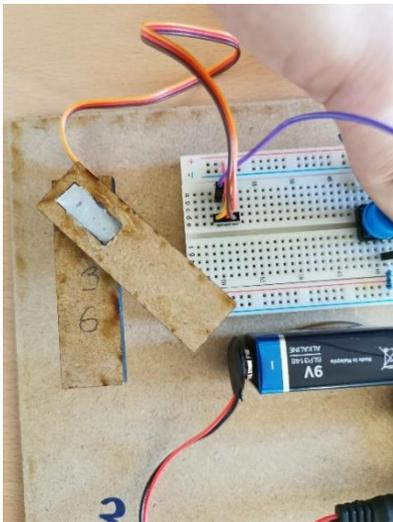
## RIDDLE OVERVIEW & HINTS

### Riddle 1: Electric Puzzle

#### Description

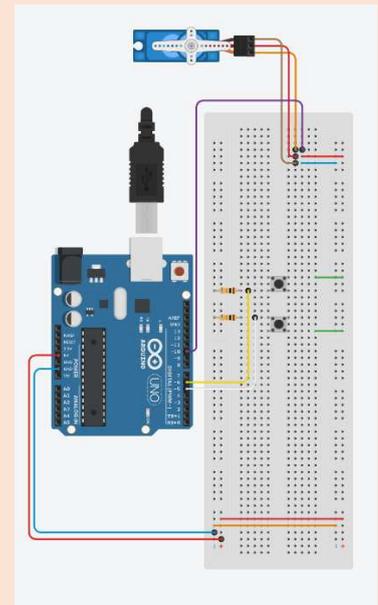
The goal of this puzzle is for participants to correctly read the electric schematic and use it to properly connect the electronic components to the Arduino.

The goal is reached when the players have connected the electronic components and obtain the code (36).



#### Materials needed

- Arduino UNO
- Micro Servo
- Pushbutton 2X
- High resistor 2X (10kΩ)
- A power source (USB cable or Battery)
- Breadboard
- Set of Jump Wires
- Cardboard / Wood
- Printed schematic



#### Hints for Game Master

- Carefully read the schematics.
- The servo motor needs to move.
- You have to press the two buttons.



## Riddle 2: Math Puzzle

### Description

The objective of this puzzle is for players to re-arrange the pieces of the wood/cardboard puzzle.

They must fit squares A and B into the big hole where the C square was. If they arrange them properly, they will get a code number.

This puzzle is a visual example of how the Pythagoras theorem works.

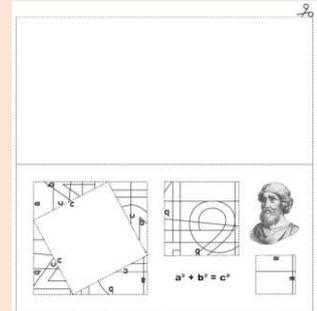
**The goal is to arrange the pieces correctly and obtain the code (42).**

### Hints for Game Master

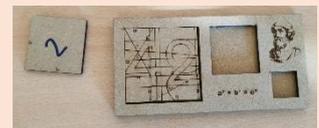
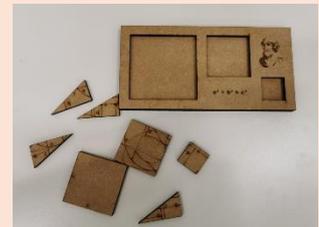
- Look at the lines on the pieces.
- The result must be two numbers.
- Think about how you can fit all the pieces (with writing on it) into the big square hole.

### Materials needed

- Printed template:



- Transferred template on cardboard or wood





## Riddle 3: PC Puzzle

### Description

The objective of this puzzle is for the participants to decrypt a message on a WEB Page.

They will be given access to a computer with an encrypted message that they will need to input to get the result which will be a number needed to unlock the final puzzle.

Decrypted message: cryptography

Link to the zip folder containing the webpage:

<https://bit.ly/3z2PQ8y>

**The goal is reached when players decrypted the message and obtained the code (87).**

### Hints for Game Master

- You have to decode the message on the website.
- It is a simple cypher.
- Numbers represent letters.

### Materials needed

- PC or laptop with web page opened and ready
- Webpage in zip folder <https://bit.ly/3z2PQ8y>  

- Pens & paper



## Riddle 4: Wood Puzzle

### Description

The objective of this puzzle is for the participants to figure out the right position of pieces and then finish the equation to get the right result.

There are many different combinations and the participants will have to use the process of elimination to get the correct set of 3 pieces to complete the puzzle.

Afterwards, they will need to also use some basic math skills to get the correct result from the equation.

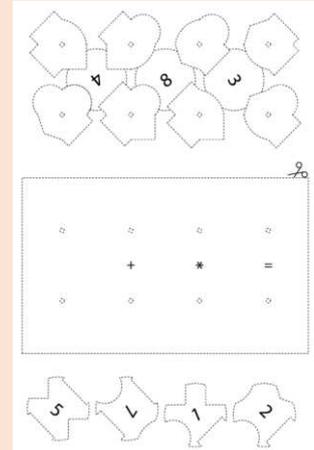
**The goal of this puzzle is for the participants to figure out the right position of pieces and then finish the equation to get the right result (28).**

### Hints for Game Master

- You won't need all the pieces.
- Some pieces might fit but are not correct.
- At the end you get an equation that you need to solve.

### Materials needed

- Printed template and shaped transferred to wood or cardboard:





## Riddle 5: Unlocking the Box

### Description

This is the challenge that connects all the other puzzles. The goal for this one is to collect all the results of previous puzzles and use them to unlock the box.

**The goal is reached when the players opened the box.**

### Hints for Game Master

- You have to input the given numbers from previous puzzles in the right combination.
- If you copied our challenges exactly than you can set the first lock to code 1: **2842** and the second to code 2: **3687**

### Materials needed

- Simple box
- Two 4-digit padlocks





## DEBRIEFING

In the end, it is revealed that the scientist went on holiday and his assistant (game master) forgot this and was supposed to take care of the zeppelin.

At the end we should also ask the participants what they thought of the puzzles and the escape room in general.

Meet the students and give them feedback about how they performed. Explain what worked well, if and where they surprised you, where they performed better than the average or expected and where team and individual efforts were good and fruitful. Also mention what did not work so well and where improvements in the group and the individual actions could have helped solve the riddles easier.

If they completed the game in the 30 minutes timeframe, congratulate them on their success. If they needed longer, still mention the finalisation positively and explain what caused the delay.



## WALK-THROUGH

**Before you solve the last puzzle, you have to solve the previous 4. The order in which you solve these isn't important. From them you then get 8 numbers which you need to solve the last puzzle.**

### Riddle 1: Electric Puzzle

The participants are given all the pieces of the puzzle. This includes the battery, wires, servo, an Arduino and a diagram of how the circuit should be assembled. The participants assemble the circuit according to the diagram. If the circuit is successfully assembled, the servo should move by the press of both buttons and reveal a secret 2-digit number that is part of the solution to the final puzzle.

### Riddle 2: Math Puzzle

The participants find this puzzle assembled in a way that A, B and C pieces are placed in separate space. They have to see that some pieces have lines on them that match other pieces and that these lines make up a symbol. They have to find a way to fill the C space with only pieces with lines on them. They have to see that A and B pieces can fit into the C space together with the triangles. In the end, the puzzles must reveal a 2-digit number that is another piece of the solution for the final puzzle.

### Riddle 3: PC Puzzle

The participants are given a computer and have to decipher a string. The logic behind this riddle is that they have to use a lookup table that they also have on the screen. The participants have to figure out that the individual numbers correspond to letters. If they replace the numbers with the correct letters they get the password to the puzzle. This grants them access to the website and gives them a 2-digit number, that is part of the solution to the final puzzle.

### Riddle 4: Wood Puzzle

The participants are to be given a bunch of different pieces of this puzzle. In the end, however, they will use only 3. The goal is to orient the pieces bolted to the board in the correct orientation and then fit the correct pieces in between them. This will then show them a mathematical equation. Afterwards, they have to use some basic math skills to solve the equation. The result is another 2-digit number that is part of the solution to the final puzzle.

### Riddle 5: Unlocking the Box

As the final puzzle, the participants are presented with a locked box/drawer with two number locks on it, each requiring the right combination of 4 numbers to unlock. To unlock it, the participants have to merge all the solutions of all previous puzzles in the correct order to unlock both of the locks.

# Escape Stay



IHK-Projektgesellschaft mbH  
OSTBRANDENBURG



[www.escape2stay.eu](http://www.escape2stay.eu)



Co-funded by the  
Erasmus+ Programme  
of the European Union

The European Commission's support for the production of this publication does not constitute an endorsement of the contents, which reflect the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.