

## ESCAPE ROOM TITLE: USEFUL BACTERIA

- **Target Group** 13 – 15 years old
- **Number of participants** 25-26 students divided in 5-6 teams
- **Level** 7-9 grade – General secondary education
- **Time Needed in total** 60 minutes  
A timer on the wall
- **Organisation**

The event will take place in a regular classroom. The desks and chairs will be rearranged to form 5-6 stations. The students will be divided into 5-6 teams. There will be a label for each station with the number of the team and the names of the participants. Each team will have their labels in a different colour. All the necessary materials are placed on GM's table (the puzzles and instructions will be put in boxes/folders, and labelled). Each team will choose a leader for communication with the teacher/GM (taking the folders with materials, asking for hints, showing the solved puzzle).

- **Pedagogical Objectives**

- Understand that beneficial bacteria can help keep us healthy
- Know that most bacteria are beneficial to us
- Know that bacteria can be put to good use
- Learn about a scientist who discovered the benefits of a bacterium

- **STEAM concepts covered**

Biology – Prokaryotic cells/Bacteria  
Technology - Fermentation process; production of yoghurt

- **Background story**

A microbe is spreading from country to country, an early pandemic. Investigation shows that during feeding the protein substances in food are degraded by its action causing poisoning of the body and early death. The only food that can restrict the development of that agent in the intestines is the Bulgarian yogurt, by which is explained the largest number of healthy centenarians in Bulgaria.

Dr. Stamen Grigorov, undertaking a research on the Bulgarian yogurt found the secret.

You will be locked in a secure room from which you cannot come out until you find the secret recipe for making a very healthy yogurt and save many people from early death. You have 60 minutes to do it!

## SCENARIO

- **How will the escape room unfold?**

Students enter the classroom and find their places in the different teams. The teacher/GM introduces the players to the escape room verbally. He explains the background story and the students' goal, acceptable behaviour in the room, health and safety issues, emergency cases, rules of the ER:

- Nothing is to be obtained by force or by breaking an object
- Leave the objects in place; do not collect the puzzles, write the answers of the puzzles in a table
- The boxes/folders must be consulted on site, at the right time and then put back in their place!
- The game master (the teacher) speaks only when he wishes and does not respond to questions.
- Do not communicate with the other teams on what you have found
- Each puzzle gives an answer allowing you to move on to the next one
- You will exit the room when you have solved all the puzzles and found the secret recipe (verified by the teacher at the exit).

The teacher/GM gives the start of the game, asks the leaders of the teams to take the first box/folder for their teams and then sets the timer for 60 minutes. The participants open the box/folder and find the instruction and the Multiple Choice Questions Quiz for puzzle #1. The teacher/GM plays the video. The correct answers give the topic of the video and title of the Escape Room – Useful Bacteria.

The fifth box/folder contains instructions message and 4 envelopes. The first envelope contains images of yogurt and a paper "History of Bulgarian yogurt", the second one - instructions note, a multiple-choice questions quiz - puzzle #5 with a video link, the third - puzzle #6, and the fourth - code. The players open the first envelope and quickly read the text. Then they go to the second envelope and find the instructions and the quiz. The teacher/GM plays the video; the students watch and answer the questions. The correct answers to the quiz give the word MAZE, which leads the students to puzzle #6. They will have to open the third envelope, which contains the puzzle, the instructions and solve the puzzle. If they cannot guess the name of the scientist, they use the last envelope with the code for the name of the founder of *Lactobacillus bulgaricus* and a clue for finding the secret recipe for homemade yogurt. They decode the name - Stamen Grigorov and the message. The handwritten secret recipe for homemade Bulgarian yogurt is under the desk. They find it and can exit the ER.

- **Ambiance and decor elements in place**

The classroom will be rearranged to form 5-6 stations. The desks will form a table and 5-6 chairs will surround it – for each station. There will be a label for each station with the number of the team and the names of the participants. All the necessary materials are placed on each station's table.

The puzzles and instructions will be put in coloured boxes/folders, and labelled.

Teacher's desk – computer/laptop, coloured boxes/folders with puzzles and instructions, multimedia, timer on the wall behind the teacher

Students' work about bacteria from the previous lessons – drawings, posters, - on the wall; models – in a special corner on a desk.

- **Introductory information given and format**

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- **Escape Room phases and time needed**

Phase 1/Puzzle 1: 10 minutes

Phase 2/Puzzle 2: 5-10 minutes

Phase 3/Puzzle 3: 5-10 minutes

Phase 4/Puzzle 4: 5-10 minutes

Phase 5/Puzzle 5: 5-10 minutes

Phase 6/Puzzle 6: 10 minutes

- **Materials given to the students (if relevant)**

o	Pens/Pencils
o	Paper
o	Highlighters
o	Biology book –on each station’s table
o	Visuals of bacteria - for each station
o	Paper boxes/folders – 5 for each team containing the materials for each puzzle

- **General presentation of enigmas/puzzles**

Puzzle 1 – Multiple Choice Questions Quiz - in the box/folder 1
Puzzle 2 - Scrambled Words - hidden in the Biology book on p.47
<ul style="list-style-type: none"> <li>● Escape room/puzzle 1: Multiple Choice Questions Quiz</li> <li>● Escape room/puzzle 2: Scrambled Words</li> <li>● Escape room/puzzle 3: Crossword puzzle based on bacteria</li> <li>● Escape room/puzzle 4: Word Search based on description of yogurt</li> <li>● Escape room/puzzle 5: Multiple Choice Questions Quiz 2</li> <li>● Escape room/puzzle 6: Maze leading to decoding the name of Stamen Grigorov and finding the secret recipe</li> </ul>
Puzzle 6 – maze leading to decoding the name of Stamen Grigorov and finding the secret recipe – in paper bag/folder 5, envelopes 3 and 4

- **List of Enigmas/Puzzles**