



IV. LINEAR & OPEN PATH PUZZLE: HOW TO CHOOSE?

Students and children (even adults) enjoy puzzles and brain teasers. But did you know they help children become more attentive and effectively boost their attention span? Brain teasers help improve cognitive abilities, encourage innovative thinking, look at things from new perspectives, and develop problem-solving skills.

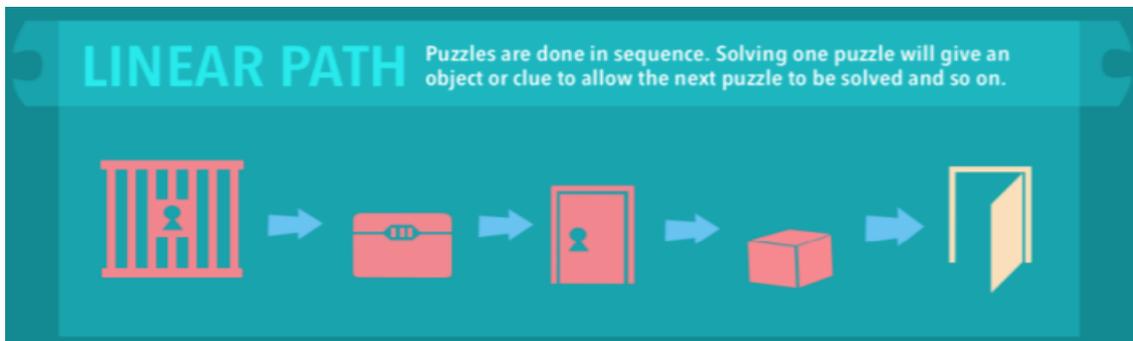
From this point of view, the STEAMER project boosts education by creating and adapting Escape Rooms for schools, thus providing a new range of possibilities in teaching STEAM-oriented subjects. To successfully escape the room, teams will need to work together to solve all STEM tasks, ranging from computer programming to DNA sequencing.

Escape rooms are games that ask groups to think critically, problem-solve, troubleshoot, and work collaboratively to “escape” a room before the clock runs out. Teams must follow clues and work together to solve puzzles leading them towards a successful escape. After adapting the concept to a classroom environment, students will be solving STEM-related puzzles to unlock a special box!



1. Sample of Escape Room Setting

However, how does one choose what path their ER will follow? Is this choice dependent on other factors? There are different possibilities for organizing a puzzle sequence together; today, we will explore two of the most frequent, the linear and open path ones.

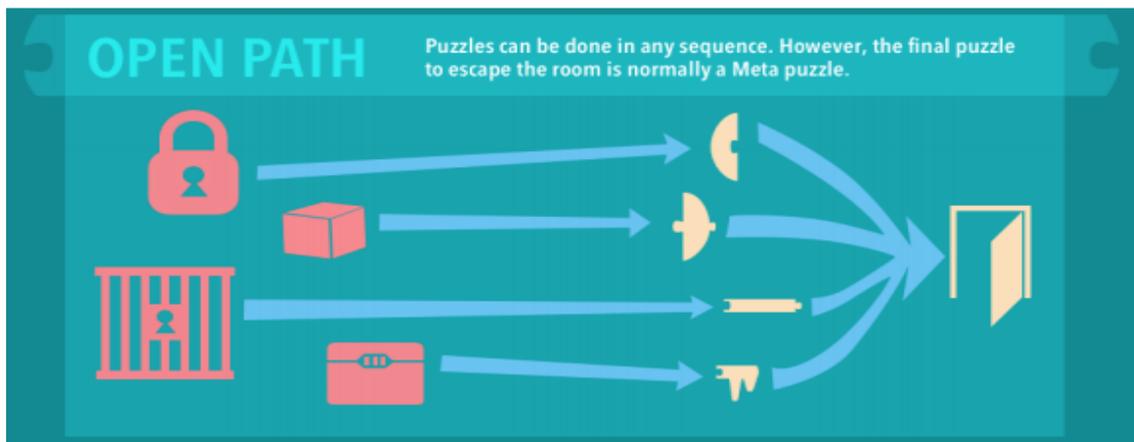


2. Illustration of a Linear Path Puzzle - Wiemker et al. (2015:9)

First, let's start with the linear path. The organization of the puzzles follows a sequence when each element leads to another. Resolving the first puzzle leads to the second, the second to the third, and so on until you reach the last part that unlocks the room. It is the more straightforward solution to structuring an Escape Room, as the participants know where to start, what they need to do, and where it ends. However, there are some disadvantages of using this type of puzzle structure that educators might encounter on the way.

Firstly, linear path puzzles are not ideal for larger groups (8-10 people) – like in an educative escape room – as their structure reduces the possibilities of working as a team. While 3 or 4 people might work on this kind of puzzle, some students will eventually take a back seat when it comes to a bigger group. Consequently, this will reduce the feeling of accomplishment and fulfilment, as only some students stand out. It is optimal to use this path design with young and inexperienced participants to teach the theory and the game, avoiding potential overload, misunderstanding, and discouragement.

In regards to open path puzzles, the methodology differs.



3. Illustration of an Open Path Puzzle

The open path is made up of puzzles that can be solved in any order and with which you can engage at any time during the game. Each player can choose which one to focus on, change it and come back to it later. The last puzzle is usually blocked; all the previous parts need to be combined to find the final solution. Open path puzzles are easily adapted to educative escape rooms, fostering collaboration, and social skills among students. In addition, the open structure still offers the advantage of being simple to apply while providing excellent learning opportunities (i.e., equations or chemical formulas).

Yet, open path puzzles will be more difficult for inexperienced players, as they lack a clear starting point or a visible sequence and logic. In addition, open paths remove the possibility for surprises – often a key factor in maintaining pupils’ interest – as everything is available from the start.

Taking this into account, when designing an educational escape room, it will up to teacher’s discretion to determine what type of puzzles will be included, based on the educational goals, the target group, and the level of experience of their learners’ group. A recommendation would be to start with the linear path at the beginning of the creation journey, introducing kids to a more self-centered learning experience and gradually move on to open path, always corresponding with their feedback. Keep in mind that puzzles cultivate basic skills – like goal-setting and a sense of achievement. For this reason, remember to clearly outline both the task and the reward to stimulate and inspire your students.