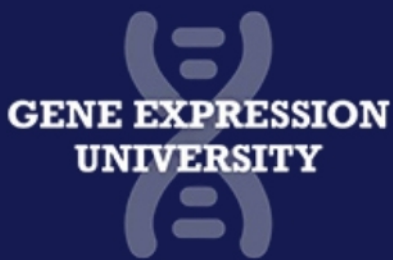




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COVID-19

Applying active learning in a virtual classroom such as a molecular biology escape room

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Abstract

The transition to remote-teaching online for Molecular Biology has forced active learning exercises like Escape Rooms to also move online. In the past, Escape Rooms have been an effective tool for students to help reinforce concepts they learned in Molecular Biology. We propose that there is a way for Escape Rooms to be moved to an online setting and still be an effective avenue for students to learn the material in a fun and interactive way.

KEYWORDS

COVID-19, escape room, molecular biology, online teaching, remote-teaching

In an effort to implement active learning activities in a traditional Molecular Biology I classroom, an Escape Room was created to reinforce important Molecular Biology topics that were taught in the traditional lecture setting. By transforming this popular form of entertainment into a learning tool, students use “a variety of skill sets to solve problems.”¹ Due to the cancellation of in-person lectures, this Escape Room has been made virtual. This allows students to still play an active role in the learning process while they work remotely. For a successful Escape Room, it is important that participants are at the center of the story containing a consistent narrative.²

This virtual Escape Room was designed and implemented through the use of Google Forms. The form description contains the storyline, providing participants with important background information and clues regarding the subsequent steps. In an Escape Room, the storyline provides participants with context, something that may get lost in a traditional classroom.² The storyline is followed by a sequence of questions, each representing a virtual lock. While the storyline may provide clues, participants must utilize problem-solving skills to determine a solution to one set of problems before they are led to a subsequent section.¹ The answer types vary between multiple choice and short answer responses. As the participant progress through the virtual escape room, the

questions progress into more challenging concepts. Each question must be correctly answered before the participant can proceed to the next one. To escape the room, or get to the end of the Google Form, participants must provide the correct answer to each of the question.

One of the questions in the Escape Room involves a “Letter Scramble Lock.” Participants are provided with a word bank and a series of five questions regarding different Molecular Biology topics. Each of the words that are in the word bank are followed by a singular letter. Once participants have selected the correct five words from the word bank, they must unscramble the subsequent letters to proceed to the next question. In the Escape Room, A-O-G-D-M is unscrambled to spell DOGMA. There are other clues and puzzles with varying difficulty levels to allow the students different challenges in order to work as a team to answer the questions and to successfully answer the clues. Please inquire and the escape room can be shared for use in your classroom.

CONFLICT OF INTEREST

The authors declare no potential conflict of interest.

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