

Digital Breakout Rooms: A Culminating Activity to Stimulate Critical Thinking and Celebrate  
Student Learning

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**Overview: Initiative and Rationale**

This proposal is to introduce a cross-discipline unit based on a young-adult mystery set in Victorian London, *The Case of the Missing Marquess*, by Nancy Springer, as part of the 6th grade curriculum. This study will set the stage for the next unit, which will highlight Charles Dickens's *A Christmas Carol*. Implementing this cross curriculum middle school unit will help implement the initiative to have student centered, technology enriched activities which will support the students' intellectual development and ability to interact socially while thinking at a higher level, as proposed by Bloom's Taxonomy. According to Edwards (2015b) the Association for Middle Level Education described a framework that creates effective middle level schools in which there are two principles that are directly related to instruction (p. 65). The two principles align with this proposed unit are "students and teachers are engaged in active, purposeful learning (Active Learning)" and "educators use multiple learning and teaching approaches (Multiple Learning Approaches)" (Edwards, 2015b, p. 65–66).

Learning activities within the unit are varied and are aligned with each subject area in this cross-curricular unit. Students will first read *The Case of the Missing Marquess* by Nancy Springer in printed form or via audiobook. Both versions are available from the library.

Next, students will experience collaborative writing. Students will be given several options to fulfill the writing component and will be allowed to choose whichever option most appeals to them. The third component which will be a comprehension activity incorporating drama, where students will write and perform a short skit selecting the main events from the story. Students will be permitted to make a video of the skit using the Sock Puppets app that can be recorded and shown in class if they prefer.

The fourth component will highlight forensic science, where students investigate the evidence presented in story. They will learn the basic steps used to evaluate evidence properly through hands-on mini-labs where students will process evidence. The fifth component, geography, will entail students reading and making a map of their own using Google maps to trace locations from the story. The art component, the sixth part of this unit, will allow students to represent fictional locations from the story and add them to their Google map. The rubric of the art portion will remain open-ended so it does not restrict the students. The unit will conclude with the digital breakout activity.

The Breakout EDU concept was created by Sanders and Hammons in 2015, and is based on escape rooms, where players solve puzzles to break out of a locked room (Birckbichler, 2016). Digital escape rooms transform the learning experience into a game. The puzzles students solve can be based on any curriculum area, and the concept works with any age, from children to adults (Breakout EDU, 2017). As of 2016, over 8,700 educators are members of the Breakout EDU community (Stone, 2016). No equipment other than a computer is needed to play these digital educational games. Students can learn new material, or can participate in a culminating unit activity. A website with a Google form takes the place of the locked wooden box, and students click on various items on that website to discover puzzles. When all of the puzzles are solved correctly, the student receives a digital badge that congratulates them on their accomplishment. Because this concept is so new, there is little published scholarly work at present. However, Clarke et al. (2016) have published a preliminary case study about a concept they call EscapED, which is very similar to the Breakout EDU concept, which showed that players experienced a high level of engagement and immersion.

This unit is filled with active learning activities and therefore will increase student engagement and ultimately increase their achievement levels (Edwards, 2015b, p. 67). Bloom's Taxonomy is seen throughout this unit as students answer higher-order questions. According to Edwards, (2015b, p. 68), middle school students should be offered a variety of learning forms and contexts so they can collaboratively solve problems and engage with higher-level thinking. Today's youth are capable of "abstract thought, which enables them to reason logically through real and hypothetical complex, multifaceted problems" (Barnes & Urbankowski, 2014, p. 17). While implementing this active learning unit the teachers instructing the students must also possess particular characteristics in order for this unit to be successful such as determination, be student focused, and willing to try to use different techniques in their classrooms (Edwards, 2015b, p. 79). The teachers implementing this unit will be great teachers that will "depend on authentic performance tasks to promote students' developmental advances and lessen developmental limitations" (Barnes & Urbankowski, 2014, p. 23).

This unit is a culmination of active learning experiences for middle school students. In fact, according to Edwards (2015a) active learning can be divided up into three distinct parts, intellectual, physical, and social (p. 27). The instructional strategies fall into these three distinct parts. The active learning component includes inquiry activities, problem-solving activities, and student made multimedia presentations which can be seen in almost all the activities. The socially active component consists of small group discussions and projects. The physically active component includes lab experiments, hands-on projects and games (p. 27).

## Implementation

We evaluated the proposal from the perspective of the Hexagon Tool, which evaluates proposed interventions in six categories (Blase, Kiser, & Van Dyke, 2013):

1. Needs of students: This unit will meet the students' needs by exposing them to a series of activities which will help them learn about Victorian values and society, forensic techniques used to solve mysteries, and will develop students' creative skills
2. Fit: This unit fits into the English Language Arts, Science, and performing arts curricula. CCSS addressed the following:
  - RL.6.1: Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text. (particularly focus on character development for this novel study)
  - RL.6.3: Describe how a particular story's or drama's plot unfolds in a series of episodes as well as how the characters respond or change as the plot moves toward a resolution.
  - RL.6.6: Explain how an author develops the point of view of the narrator or speaker in a text.
  - RL.6.9: Compare and contrast texts in different forms or genres (e.g., stories and poems; historical novels and fantasy stories) in terms of their approaches to similar themes and topics.
3. Resource Availability: The book that is the basis of this unit, *The Case of the Missing Marquess* by Nancy Springer, is available as an e-book through our

library. All other materials will be developed and implemented by our existing faculty

4. Evidence: According to Michael (2006) Active Learning is a set of instructional strategies designed to help students drive their own learning. The approach proposed seeks to help students reach higher levels of Bloom's Taxonomy and create engaged learners.
5. Readiness for Replication: It is not uncommon for an integrated, cross-discipline unit to be introduced at the middle-school level. Part of the difficulty in planning cross-discipline units is the time factor involved. Replicating a pre-planned unit takes away much of the burden for teachers.
6. Capacity to Implement: The unit can be implemented by the existing faculty with no additional investment required. Once all elements are in place, any school with computers and an internet connection would be able to implement the unit.

#### Implementation steps:

- Faculty meeting of all 6th grade team members, to introduce the concept and obtain buy-in
- Development of detailed activities to support each subject area
- Development of web page with additional resources to support the faculty delivering the unit
- Development of digital Breakout activity as culminating activity for the unit
- Post-implementation evaluation and review of unit and results

## Evaluation

The evaluation plan for this unit includes a series of formative assessments and one culminating summative assessment. The planning of this unit was based on, the Hexagon Tool, which illustrates the links of a system “interaction, integration, and intelligence (Spector et al., 2016, p. 60). The integration of activities and technology in this unit was designed to maintain the interest and engagement of the students by choosing specific formative activities and one summative activity, which avoided tedious and time consuming assessments that would disengage learners (Spector et al., 2016, p. 60). The primary goals of formative assessments are to allow students to meet the goals of the unit, to provide the students and the teachers awareness of deficiencies, and to evaluate the student's' performance in order to modify the activities if needed (Spector et al., 2016, p. 61).

The evaluation plan includes formative assessment of each main activity. After students read *The Case of the Missing Marquess*, by Nancy Springer, they will be introduced to a collaborative writing assignment. Students will be chosen from assignment options, which should ensure their choice to maintain their engagement. They can choose to write a newspaper article about the investigation, informative report about Victorian London, description of Victorian fashion, an essay or blog post about social conditions of the time, an essay or blog post about women's suffrage, or any other writing project approved by the instructor. The students will utilize Google Docs to complete this activity so the teacher can provide real time feedback on the student's' work. McKnight et al. (2016) found when teachers used Google Docs with their students, it provided the means for simultaneous review, editing, and feedback, which in turn enhanced classroom discussions. This “collaboration through technology strengthened

relationships and blurred traditional roles, so that all collaborators were learners” (McKnight et al., 2016, p. 203).

The drama activity serves as a formative assessment because the students will be highlighting the main events from the story in a self-made video. Smyth and Ross (1999) found that video use allowed students and teachers to evaluate their work better, because it slowed down real time, enabling both students and teachers to reflect (p. 210).

The Forensic Science component will have students investigate the evidence presented in story. The forensics investigation will start by having groups of students access a Google Doc which will guide the students through their investigation. The document will provide space for student notes, data, and conclusions. Using Google Docs allows the teacher to provide immediate feedback, to assess where students are in their investigation, and to determine if they need any guidance. Students will record their results in tabular form and draw conclusions, including a summative image such as charts, timelines, etc. to accompany their written explanations (Boles, 2011, p. 22). Students will visit numerous sites set up in the school that depicted sites from the novel. At these sites faculty members will evaluate the students’ lab procedures using a checklist rubric. Items to check include: using gloves and goggles where appropriate, maintaining proper crime scene procedures for securing evidence, proper use of tools, and communicating and collaborating as a group. Each student group will submit a formal report and an oral presentation of their findings during a mock trial. During this time, other student groups will evaluate the presenters based on a rubric provided to all students a few days prior to presentations. To receive the highest score, the student groups had to have reported on key evidence found and correctly identify the suspect.



Another example of formative assessment incorporated into this unit is when the students will read and make a map of their own through the utilization of Google Maps to trace the route of the events in this crime. Incorporating Google Earth is yet another avenue in which this unit incorporates technology. Google Earth allows students to experience an interactive map experience beyond traditional paper maps and worksheets which ensures student engagement (Johnson, Lang, & Zophy, 2011, p. 104). Specifically for this unit, Google Earth provides a way to transport the students across the globe in seconds to visit all the sites in London such as East End, Scotland Yard, and the Wharf (Johnson, Lang, & Zophy, 2011, p. 104). The teacher will then be able to provide immediate feedback to the students and assess their learning as they look at the students' screens to ensure the students are in the right geographic location on Google Earth. Specifically, the detailed objectives for this portion of the unit will be measured by the use of Google Earth during the student-centered mapping activity which will help the teacher facilitate all the students' learning (Johnson, Lang, & Zophy, 2011, p. 104).

The unit will conclude with a digital breakout activity, which will include elements of formative assessment and review, and will culminate in solving the mystery, the summative assessment. The successful implementation of digital breakout rooms first rests upon the successful completion of the unit of study. Since the digital breakout room is a culminating activity, evidence of student learning will have already be collected formatively at many points throughout the unit. The real power of the activity is that it requires students to synthesize their knowledge of various disciplines, collaborate with group members, communicate with their classmates, and think critically to solve problems. Since this unit is cross-discipline in its design, teachers must collaborate as well in order for its implementation to be successful.

**Reflection**

This unit connected to our readings from this course in multiple ways, however the main influences on its development were derived from Bloom's Taxonomy and the application of the SAMR model. Bloom's Taxonomy focuses on deepening student thinking by pushing beyond recalling and into analyzing and creating. In this unit when students are asked to analyze, synthesize, and evaluate through activities and higher level questioning. The instructors will have students compare and contrast, create and revise, and explain and conclude (Vosen, 2008).

The Substitution, Augmentation, Modification, and Redefinition (SAMR) model assists teachers in assessing the level of their use of technology. As the teacher assigns activities which are higher on the SAMR ladder, they are using technology more effectively (Hamilton, Rosenberg, & Akcaoglu, 2016). Traditional methods might include passive readings and perhaps a movie or filmstrip. By contrast, this unit immerses students in the Victorian context by collaborative writing assignments, which is a Modification, replacing the former individual book report or essay. Next, students create their own video, a Redefinition task which would be impossible without the technology (Hamilton, Rosenberg, & Akcaoglu, 2016). The students take on the role of forensic scientists and use technology to evaluate evidence from the scene and to explore London without leaving their classroom, which would also be a Redefinition under the SAMR model. They express themselves creatively through art, sometimes enhanced by technology. Finally, they experience time pressure and a competitive atmosphere as groups of students race to be first to solve the clues and the case. This immersive activity is yet another example of Redefinition, because the technology opens the door to this exploration.

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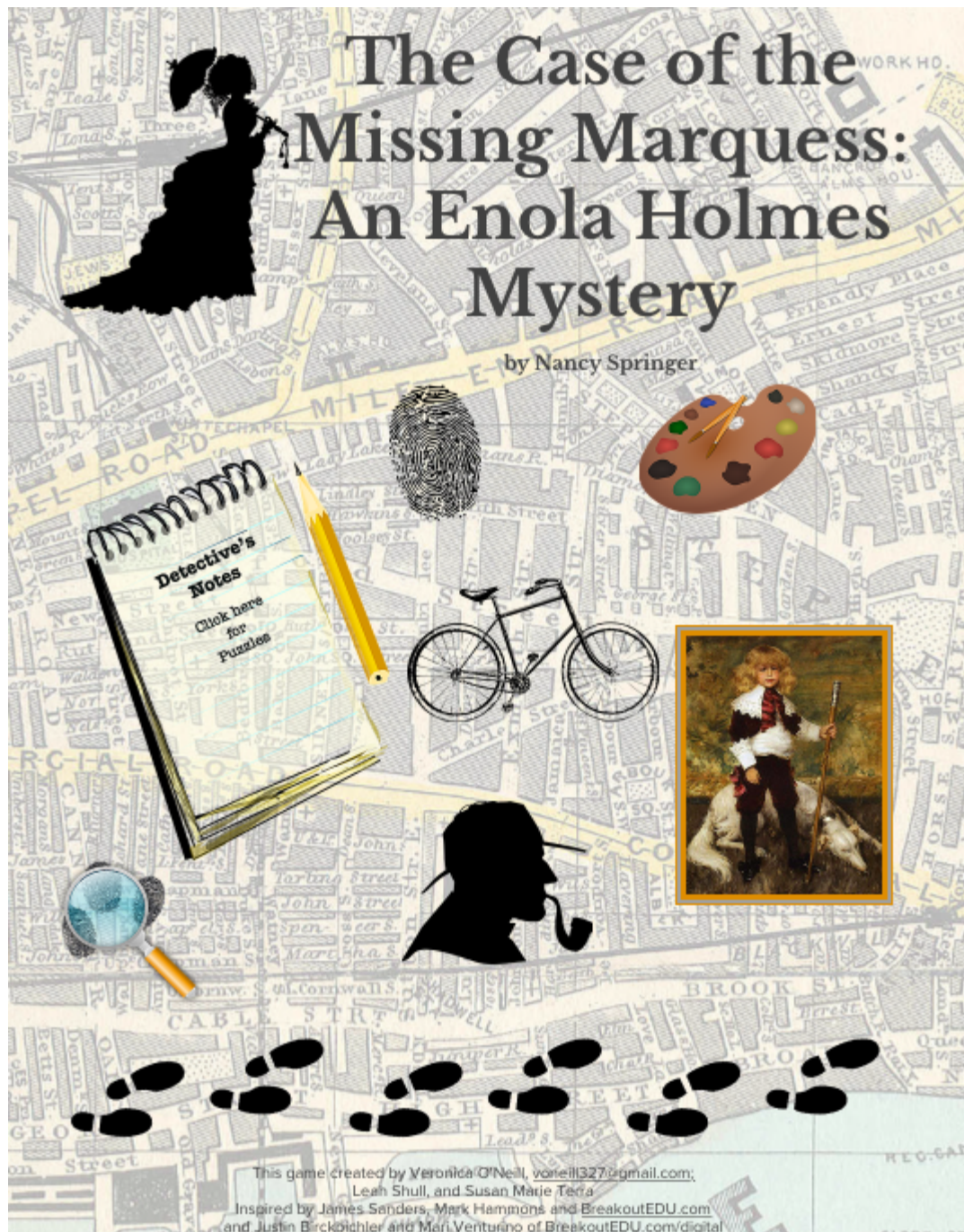
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Appendix



<https://voneill327.wixsite.com/currproject4>

To play this digital breakout game, the student or team of students accesses the website above. They can click anywhere on the webpage, and they will be transported to other pages which contain puzzles to be solved. The Detective's Notebook remains open throughout the game, and contains a Google form to collect the solutions to the puzzles. Each of the other icons on the webpage lead to puzzles, from matching puzzles and fill-in-the-blank puzzles to ciphers inspired by the novel. Successful completion of the puzzles leads to a digital congratulations badge, pictured below.

