THE MATH INSIDE THE GAME

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PROJECT DESCRIPTION

Knowing the limits of the QEP, the amount of competencies per subject and the common teacher complaint of insufficient amount of time, the need for curricular integration is essential. Our project goal was to develop a variety of lessons that integrated mathematics and physical education competencies that would get students moving and engaged in learning.

WHAT WENT WELL

The three teachers involved in this project are currently working together at the same school board and have worked together in the past. As such, we had a good working relationship and the time that we spent together on this project was used efficiently as we had a like-minded vision, a clear understanding of the QEP and knowledge of what appeals to our target audience. In many schools there are typically only one or two teachers with an in-depth knowledge of the physical education program which often makes this subject isolated and an unlikely candidate for subject integration. Being three physical education teachers gave us an advantage in creating this project as we get to connect with students in a role that delivers valuable insight, not only into their physical abilities, but also personal character. Knowing how kids like to play proved to be an essential element to this project as we were able to channel math concepts through games that we knew students would respond to positively. Through implementation and trial sessions of the activities with our own students, we were able to reflect on our ideas and alter final lessons. In addition, we also shared several of our lessons during professional development days at our respective schools, which opened the door to integrating lessons with not only mathematics, but perhaps other subjects as well.

CHALLENGES

The main challenge that we encountered was trying to coordinate all five original members in the PDIG sessions, as two members worked and lived in further locations; timing was an issue as we work for different schools with different calendars and school events. As a result, these two members were not able to physically participate in the PDIG. However, they were able to review ideas and collaborate electronically on their own time. Working full time and being involved in many extra curricular projects/events, limited our ability to begin our project in a timelier manner. This being our first time involved in a PDIG, we learned that starting earlier and scheduling work sessions at the beginning of the school year would be beneficial to avoid conflicts with other obligations; creating a more balanced work-load. The nature of the sessions themselves had both positive and negative affects, as the time spent between PDIG meetings gave us the opportunity to experiment with our activities and gather feedback, although it was also difficult to immerse ourselves into content development and have to start and stop based on rigid calendar dates rather than the flow of the inventive process.

PROJECT GOALS

We were successful in our goal to create a variety of lessons that integrated competencies from both the mathematical and physical education QEP. The activities created were tested on our own students, which provided us with valuable insight and opportunity to reflect and make adjustments. Student feedback confirmed to us that the games were engaging and energizing while being tied to core curricular concepts. We were able to share our ideas with staff, collaborate with other teachers. Moreover, if approved at our board level there is potential to post the units we created onto our school board One Drive. This in turn will allow any member of our board access to the information we created. Our hope, as continuing and math and physical educators, is to make on-going adjustments and create new and innovative lessons in line with the goals of our PDIG as we believe in the benefits and efficiencies of integration.

PROJECT OUTCOMES

By creating a partnership between physical education and mathematics, teachers were able to assess student abilities by participating in the activities created. All activities were created to help reinforce mathematical concepts being taught in class. The games that were selected were geared towards curricular QEP math concepts that are taught throughout all cycles. The games focused on content that was foundational to math learners, such as operations, numeracy and fluency and were also adaptable to different levels of understanding. Several of the activities themselves came with backline master worksheets for students to solve problems or record data that could be graded. These activities lent themselves to further mathematical investigation and discussion. Likewise, students were assessed on physical education skills, such as fitness, means of action, motor skills, ethics in sport and personal development. Our final outcome was to increase student engagement when learning or practicing math concepts allowing students to make memorable connections.

REINVESTMENT

The students engaged in the activities had the opportunity to practice and reinforce curricular concepts that are being taught in the classroom. A lot of effort was made to include extension ideas as well as adaptations on how the games can be modified and played in different physical environments. We thought that if students could be kinesthetically involved in the acquisition of math concepts, they might be able to better visualize and understand the multiple steps necessary to solve problems. Our long-term goal is to look at application and situational math problems to examine how we could adapt them to incorporate movement and content that students can connect with. Going forward we aim to connect with our school board's math consultant to get our units posted on our shared One Drive folder. Additionally, we would like the opportunity to re-evaluate the school board's current math resources so that they may be more in-line with some of the games that we have created.