Praxis Paper

As science teachers it can often be difficult to find creative and innovative ways to teach the periodic table and elements to students. This lesson is about discovering the first 20 elements on the periodic table and other key features of the periodic table. It is based from the Ontario Grade 9 Science Curriculum and includes two main activities. We decided to use an interactive instructional video for the introductory activity. It aims to engage the whole class by introducing a new concept like the periodic table through active student participation. We chose an instructional video because it is an innovative way for teachers to create content, share resources with students online, and improve practice (Tucker, 2012). This video is an experience –based learning tool that is interactive and engaging. This activity is designed to provide various opportunities for students to acquire language and content development through modelling and guided practise. Under the guidance of a teacher the student will follow along with instructions and colour in different features of the periodic table. As a result, students become more engaged as they get familiarized with elements' symbol, names and their location on the periodic table. The colour code periodic table is a useful tool because it helps students visualize the different categories (i.e. chemical groups and periods, metals, non-metals, and metalloids) that correspond to a specific element.

Our main activity is the board game called Elemental Pursuit, which uses multimodalities to demonstrate content literacy through vocabulary, symbols and interactive play. Themed games can be a useful pedagogical tool to introduce new contextual knowledge and serves as an anchor for learning (Harris 2009). We decided to use this board game as a way to introduce other topics under the Grade 9 Chemistry subunit on elemental properties

because it promotes the application of new vocabulary and concepts. As students read and interactively answer questions outlined on the game cards about a specific element. Students will then locate and mark the specific element on the board. This allows students to apply their new and existing knowledge to complete the desired task. In doing so, students develop problem solving and critical skills by implementing a variety of strategies during each round.

Game-based learning engages and motivates students by stimulating fun and creative ways of learning. Game play also facilitates the development of students' social skills through students' taking turns, listening, sharing, resolving conflicts and developing coping skills (Hromek & Roffey, 2009). Employing the game in small groups of 3-4 students enables the maximum participation whereby each student has the opportunity to answer the questions and test their own understanding (Hromek & Roffey, 2009). Games promote cooperative learning in groups that are comprised of varied learning abilities. This encourages collaborative learning and builds students' confidence through persistence in a positive and safe environment (Harris, 2009).

Overall, this lesson plan was developed as a practical and simple teaching tool. The first part uses an instructional video to introduce new concepts on the periodic table in an engaging and interactive way and provides opportunity for modeling and guided practise. The board game allows students to apply and test their understanding of the material through fun and cooperative learning. Finally, the culminating activity further consolidates students' learning by providing more opportunity for practise and feedback. This tool is most effective as an introductory activity to introduce new concepts in a unit because it serves to engage students and motivate learning.