

SCIENCE PDIG FINAL REPORT

"The important thing is to never stop questioning." This quote made by the illustrious Albert Einstein highlights the reason why our 2018 Cycle 3 science PDIG was of great importance for the Dr. S.E. McDowell Elementary school community. Our project outcomes were multifaceted and the teachers involved in this work made several achievements. The project addressed the implementation of a refurbished Science curriculum in Cycle 3, where split classes at our school have created some pedagogical challenges in the past.

Our group of four teachers met five times during the school year (2017-2018) to carry out our PDIG plan. During our first meeting, we went through the proposed plan and discussed how to carry it out over the course of the allotted time, keeping in mind the scheduled days and what our desired outcomes would be. Due to transfers and a maternity leave, the original members were replaced by two new teachers, who were unfamiliar with the proposal and the manner in which we had previously delivered Science at Dr. S. E. McDowell Elementary School. We spent some time sharing ideas and plans with them, as well as inviting them to contribute thoughts and ideas from their previous teaching experiences. Completing this PDIG has changed how Science can be implemented at McDowell. It has also made it easier for new staff to transition in and out of Cycle Three with the necessary information and guidelines outlined in a visible and explicit way.

Firstly, we were able to develop a two-year plan for Science in Cycle Three classes. We developed a catalogue of available resources within our school and this allowed us to see what resources we had and what resources were needed to help improve our Science program as a whole. Moreover, we created an organized Science resource room in our school and catalogued all our materials in labeled and organized containers. A database of all these materials, including quantities has been established and now, each year, a Science Leader will easily be able to maintain our inventory and make essential ordering easier for all involved. Storage of these items in a clear and concise way has ensured that all staff, new and experienced, will know how to find necessary materials.

Additionally, staff will now be aware of the materials that they should provide and purchase independently.

A vertical science plan was created outlining the science units to be completed in Cycle Three, ensuring all pedagogical material will be covered. This is especially helpful with regular split classes, in ensuring that all students receive equal and consistent educational opportunities. These units allow for new teachers to easily access information related to curriculum planning and, additionally, allow all teachers the opportunity to create quality year planners.

All members of the Cycle Three team collaborated to create Science Resources and Materials using Google Drive as a storage system, in both English and French. This system allows all members to share resources and continually add and edit material. All units included Evaluation/Rubrics, Labs and Lesson Plans. As material is used and implemented, there will be an opportunity to revise and perfect the science curriculum to best suit McDowell's learning needs.

This sharing of ideas with educational partners through the Google Drive, has allowed for more dynamic cross-curricular units and consistent lessons. Moreover, this membership has allowed for more opportunities for hands-on, engaging lessons that are differentiated to meet the needs of all learners in Cycle 3 Science. This online space will allow for the easy communication of resources with other Science programs in the school board. This will provide the opportunity for further networking opportunities and the sharing of ideas and resources.

We produced a curriculum rotation schedule for both grades 5 and 6 (including split grades) to ensure that teachers are able to share all the resources fairly and not get into situations where Science equipment is not available to certain classes during the academic school year. This way students remain engaged and challenged with new, hands-on Science materials and other quality educational resources instead of only limited paper tasks.

Participating teachers were able to identify successful strategies used in the Science program, in addition to discussing potential challenges and how to rectify

those difficulties. We have also been able to connect with the fellow Science teachers in the school and discuss our personal strengths and limitations and how best to deliver the content to the children. Moreover, by sharing our resources and expertise with each other and the school board community at large, our school board will benefit from a larger professional, collaborative learning community, which will ultimately improve student success in Science. This sharing of resources, such as rubrics and assessment tools, will allow for engaging lessons and collaborative with the use of hands-on learning while aligning with the QEP expectations.

It is important to allocate time to design collaboration opportunities outside the classroom for teachers. This PDIG has allowed us to work collaboratively in a small group. In this manner, it was easy to share learning, retain information and leave our meetings feeling satisfied that we were able to meet target goals. As there are no Science laboratories in many of our school board's elementary schools, it can be very difficult to create a Science space that houses all book, materials and equipment required for running a successful program. Creating the Science inventory has allowed us to organize our school's Science resources in a way that they are easily accessible to all staff teaching the program. Since equipment is logged and labelled, it has inspired the teachers on the team to create and implement more engaging and stimulating labs, events, and activities, which has increased the involvement and positive participation of the students as a whole.

As many teachers in the Cycle three level in our school board are to teach Science, with or without a teaching expertise in this area, this PDIG also created a space for teachers to accent on their strengths and share their own knowledge base gained throughout their years of teaching in the subject area. As we created a Google Doc to share, post and edit information as a group, it has really helped the members of the group to build shared sets of knowledge and create programs that are more aligned, allowing for a more consistent and effective delivery of course content to students in all Cycle Three classes.

Teaching split classes can pose many difficulties to a teacher. Throughout the PDIG, we were able to create a two-year plan that permits Science teachers in Cycle three to gain a clearer understanding of the curriculum content that is to be brought to the students. We were able to include assessment and teaching tools that encourage Science teachers going forward to assess students using similar and more effective approaches, determining the success criteria in the Science program together as a team.

Another way that this PDIG has made benefits to the educational community at McDowell School is that it has provided teachers the time to improve the delivery of the program to students who require special modifications or adaptations. The long-term plan that was created takes into account how each lesson can be differentiated to meet the children at the level they are at and make changes to the planning in order to increase student success rates. Teachers have been able to provide valuable insights into specific students' needs and share with the teachers who will be teaching these students in the next school year.

Moving forward, our group will be able to share our Science inventory, Google Doc and two-year plan with other staff members who teach Science in the Cycle two level and allow for cross-cycle team building alongside co-teaching opportunities. The Google Doc can be used year after year, and new, relevant and updated activities can be uploaded to the google drive as teachers find and create more lessons and evaluation tools. Each member can see what has been added or edited on the drive and it fosters an increase in active participation and collaboration of the teachers to keep this resource as up to date as possible and fill it with more hands-on and engaging Science activities. It allows for an increase in educational communication amongst our team members and school and acts as an efficient model for other Science teachers within our school and the board to follow.

This project is important to the English Educational Community, as it allows schools, such as ours, to implement quality educational resources. We have had a positive experience in creating Science units and resources that are current and

relevant, however the project would require a minimum of one year before it could be launched to other Science teachers at the board level. We would highly recommend that other teacher teams carry out this project as well; however, we would suggest that more time is allotted in order to launch the benefits of the plan to the best of its potential. This would also increase the opportunities to network and create a more cohesive and effective Science program throughout the board in Cycle Three.