**Accelerating Student Learning: A Proposal for Grade 6 Math**

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**What is your original/starting learning environment?**

As I explained previously in my week 3 blog post- I teach a grade 6/7 class at a school in Burnaby. It is in an affluent neighbourhood and many of the parents are professionals. There is a very high ELL population at the school as many of our students are immigrants or the children of immigrants. We have approximately 600 students in 25 divisions. Our students are generally high achievers. Parents have very high expectations and expect our school to be academically vigorous.

**What problems you are trying to address by making this change?**

During math class every morning, I platoon with the other grade 6/7 teacher. The problem is, we both have a large number of grade sixes and I am responsible for all 34 of them for an hour every morning. Many of the students are performing at grade level, but more than a couple are not. Furthermore, there are several who could be advancing much faster if I could find a way to allow them to progress at their own pace. I would like to adopt a blended learning program to allow for more personalized instruction.

**What would you like students to control (Time, place, path, pace)?**

Primarily I would like to give my students an opportunity to control the place and pace of their learning. This has become especially important thanks to some new developments at our school. As the school year began in September we met our new principal who was coming to us from his position as the administrator of Burnaby Online.

Given his close ties to the district’s online learning program, he informed the staff that we could offer our students t enrichment opportunities. The catch is the only courses that they are able to offer at present are Grade 8 or higher. The only way that students could do Grade 8 courses would be if they completed Grade 7 courses in Grade 6.

While this acceleration might not be possible in many subject areas, many of our students excel at mathematics. I believe if students were given the opportunity to learn at their own pace, several would progress at a much faster pace.

**What is the role of the teacher?**

My role will not change significantly as the result of adopting a station rotation model. I will continue to teach lessons on the whiteboard from the textbook. We will continue to have regular small group “challenge questions” which force students to apply their learning to solve complex problems, but students will also be free to progress beyond the assigned work to other units. I will also build into our weekly schedule a time to answer questions on whatever material a student is working on.

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**What changes to the physical environment will you make?**

At our school we have a shortage of computers at present. We have some machines waiting to be installed but we need electricity and DSL cables run to our large open pods and we need desks and chairs so students can work at them. They were supposed to be installed prior to September of this year, but the IT department at our district seems to be running about six months behind.

In the meantime, I can make use of the computer lab and a resource teacher who can keep an eye on my students when they are out of the classroom.

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**What software or hardware might you use?**

I already communicate with students and parents using [www.Edmodo.com](http://www.Edmodo.com). It’s nice to have a record of what was assigned and I have uploaded the textbook so that students always have access to it. We will continue to use this as a secondary means of communication (other than face to face).

My favourite online tutoring program is [www.ca.IXL.com](http://www.ca.IXL.com) math, but given that it costs $200 US for a year’s subscription, I will make do with the more affordable [www.KhanAcademy.org](http://www.KhanAcademy.org) for many of the topics we will be covering. They have a comprehensive Grade 6 curriculum and although it doesn’t match exactly with BC’s I am able to create a class and make recommendations to individual students based upon their individual needs.

For more applied math problems I like the resources posted by SFU professor Peter Liljedahl at his webpage here: <http://www.peterliljedahl.com/teachers/resources> . In particular I like the games and puzzles at “Math Pickle”.

For the study of transformational geometry and Cartesian planes I use the online game Transstar located here: <https://www.mangahigh.com/en-us/games/transtar>

As for hardware, as I previously mentioned, while waiting for the new machines to be installed, I can make use of the computer lab in my school. While the lab is often in demand, it is seldom used first thing in the morning when I teach math.

**How will you mix/balance online and F2F modalities?**

At present, my math is structured into a two day cycle. On day one, I take up assigned homework, teach the new lesson and assign work. Day two is typically a work block. As you can see it is very easy to adapt this to a station rotation model. All I have to do is split the class in half and set them up on alternate days.

This means of course that I will have to teach the same lesson twice and every day, but my using Khan Academy, I hope to save a considerable amount of time marking and recording student progress.

I have always used the learning outcomes listed in the IRP’s as the skeleton of my math program and mixed in a variety of resources- textbooks, games, projects and websites to flesh it out. I am not a fan of the popular textbook Math Makes Sense and my aversion to this text has forced me to get creative with my math program over the years, but as a result I have some experience parsing and remixing resources.

Assessment is another consideration. After talking with my principal, I believe that we have settled on a solution to guarantee that no student will advance without an outstanding comprehension of all of the required material. In addition to completing required work on Khan Academy, students will also be expected to exceed expectations on each unit test from the Math Makes Sense program and achieve an A on the Grade 6 diagnostic test before they are given permission to begin studying Grade 7 material.

**How will the different modalities provide an integrated learning experience?**

Students will continue to learn in class from a teacher. They will answer some questions with pencil and paper and work in small groups on problems that require them to apply their knowledge of mathematics. More and more of their homework however will be done on computers using questions generated by Khan Academy.

Students will also have the opportunity to advance on their own if they wish and accelerate their learning. The one constraint that they have though is that in order to take advantage of the enrichment program offered through Burnaby online going forward, they have to complete both Grade 6 and Grade 7 Math by September of 2016. This is not a reasonable timeline for most of the students in my class, but it remains a possibility for a select few.

Finally, I wanted to make mention of that other select group who I think will benefit from adopting a blended math program. Thus far I have talked almost exclusively about accelerating math for advanced learners, but I believe that “blenderizing” my program could benefit my students working below grade level as well. I have been talking with the resource teacher and she seems amendable to trying to incorporate blended learning into her program with the children she serves. This means that instead of being pulled out every day, they would work together with their classmates every other day in the computer room. They will also benefit from the Khan Academy videos re-enforcing lessons that they receive in school. These are useful reminders.

Although this promises to challenging, I am hopeful that it will produce a superior learning environment for all my students. It will offer them greater control and choice over what they study and when they study it. Ideally this will mean they are more engaged and excited about math.