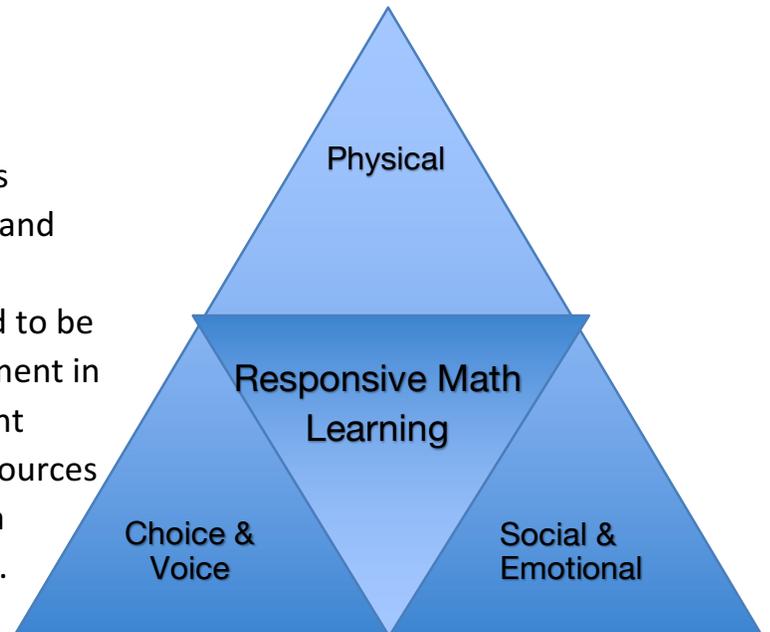


3. Learning Environment

Educators look at “the learning space with 21st Century eyes.” A Responsive Learning Environment considers three important realms which include; the Physical, the Social & Emotional, and Choice & Voice. Educators' actions, when considering and developing a Responsive Math Learning Environment, are purposeful, intentional and reflective to meet the needs of students.

When considering the Physical realm, educators look at the space of the classroom that promotes collaboration of group work as well as the space that permits quiet thinking and exploring of math. Active areas for inquiry, investigation and wonder are also considered to be part of the Physical realm. Students' involvement in the process of creating their own environment and/or understanding the purpose of the resources available can empower students to develop a sense of community and increase motivation.



When educators consider the Social & Emotional realm, students feel safer to take risks in math class so that they can make mistakes to try new ideas and strategies. Students also feel safer to revise their ideas and develop new mathematical understandings. When students feel supported by educators, they develop a more positive attitude towards math. Furthermore, when students have more opportunities to independently explore and inquire, they feel more connected to the classroom community. In these classrooms, students not only hold more positive attitudes towards math but have higher performance in math (Yang, 2015). By self-reflecting on the Social & Emotional realm, educators help to create a Responsive Learning Environment.

Educators recognize that students' Choice & Voice is important in creating a Responsive Math Learning Environment by encouraging differing thinking perspectives and ideas that are valued as ways to deepen mathematical understanding. Students have choice in exploring mathematics by choosing tasks, tools, methods and partners. As Boaler (2015), Suurtamm, Quigly and Lazarus (2014) point out, students need to engage in tasks that challenge their

current understandings and therefore have multiple entry points to meet the needs of the diverse learners in their class.

Educators understand that each realm does not exist in isolation from the others, but are interrelated. A Responsive Learning Environment is created as each realm overlaps, connects and impacts the others' to make the classroom more stimulating, challenging and safer.

Please see the link below which provides Ministry Resources to help create a Responsive Learning Environment.

<http://www.edugains.ca/newsite/math/learningenvironmentzs.html>

Boaler, J. (2015). *Mathematical Mindsets: Unleashing Students' Potential through Creative Math, Inspiring Messages and Innovative Teaching*. John Wiley & Sons.

Suurtamm, C., Quigly, B., & Lazarus, J. (2014). *WHAT WORKS? Research into Practice*. Student Achievement Division, Monograph 59.

Yang, X. (2015). Rural junior secondary school students' perceptions of classroom learning environments and their attitude and achievement in mathematics in West China. *Learning Environments Research*, 1-18.