



Programming Games and Interactives Using Lynx in Math, Science & Technology

Team Members:

Jaclyn Calder, Darren Giles, Blair Lesage, and Anthony Tipper

School District: Simcoe County DSB

Procedures

```
1 ▾ to Square :size
2   pendown
3   repeat 4 [forward size right 90]
4   penup
5   end
6
7 ▾ to Triangle :size
8   end
9
10
11 ▾ to Hexagon :size
12   end
13
14
15 ▾ to Octagon :size
16   end
17
18
```



What We Did

Our original plan was to do integrated projects between Grade 10 Applied Mathematics, Grade 10 Applied Science, and Grade 10 Communication Technology and Computer Science. In a small school, we had courses all lined up and students in combinations of classes to do integrated projects. Of course, school shutdowns, cohorting and general ongoing chaos changed our plans significantly.

Our next plan was to integrate Lynx and coding activities into our individual subject areas, continuing to focus on Grade 9 and 10. We also decided to invite our Grade 7 and 8 colleagues (our high school has newly added grade 7 and 8's to become 7-12) to do some learning in connection with the new Mathematics curriculum. This was planned to happen and then we went into our second school shutdown and transition to remote learning. We have not been able to use release time to do this unfortunately.

In the end, we simply worked together but separately. We used minimal release time (but mostly prep time) to collaborate and work together to brainstorm and learn how to use Lynx in Grade 9 Mathematics. Two grade 9 activities were completed. They are attached, along with reflections.

Another group investigated and incorporated Game Maker into Communication Technology. This required investigating the program and how it supports the transition from block to text coding. This involved a lot of learning as it was an entirely new interface to us. We managed to find time to investigate it ourselves and learn to program some basic games. Students will be using it in Communication Technology during the last quadmester (unfortunately scheduling put this course during the last quadmester so we have yet to try it with students!).



What We Learned

Grade 9 Math

The first of the grade 9 activities worked really very well. In order to make the project manageable and align well with time considerations - we found that working on creating one code together as a class and then releasing them in small groups to experiment, investigate and problem solve while creating others, worked best. This worked very well with the concept of exterior angles of regular polygons.



Sharing Our Learning

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The second activity for grade 9s still needs some polishing. It was consolidating the concepts of linear relations and rise/run. We learned that the setpos command would not allow the use of variables to set the position. For future activities, we will need to figure that out. We have plans to adapt this activity for grade 10 mathematics and trigonometry.

Communication Technology

We investigated and researched and learned that the generally acceptable standard for learning to code video games is “Game Maker”. Using online tutorials and resources we learned how to code simple, basic games. We also learned how to manage licences for Game Maker for students. This was all done using Game Maker resources. Students are excited to learn how to code video games starting in the last quadmester! We are hoping that we stay in school for that quadmester to get to put our learning to the test. Game Maker is a program we installed on school computers and may not work for all students when learning at home (example: chromebooks).



How We Shared Our Learning With Others

We have shared our work with our staff at department (math and science) meetings and whole-staff meetings. Here we shared the activities and what we learned about Lynx in particular.

We also invited some students to join in our exploration of Game Maker as an option for learning coding for creating games in communication technology. This was to get their informal input (not sharing our learning to benefit others), but was important.



Links to Our Work

Grade 9 Mathematics Lynx Learning Activities: <http://bit.ly/gr9mathLYNX>

Game Maker Education: <https://www.yoyogames.com/education>