



My name is **Peter Taylor** and I'm a Mathematics Professor at Queen's University

For most of my research career I have been studying animal, plant and even human behaviour through the lens of evolutionary game theory.

More recently my thoughts have shifted to the question of how students learn and my particular interest is in the school math curriculum, grades 7-12. You can play with some of our problems and activities at [www.rabbitmath.ca](http://www.rabbitmath.ca).

I am looking for students at the MSc or PhD level that might be interested in working with teachers (and kids!) to develop this type of school mathematics curriculum.

**Question 1** For over 50 years there has been a compelling call in the literature for a school mathematics curriculum that is "authentic" in the sense that students are working with ideas and structures that mathematicians find interesting and engaging. Why has this call not been answered?

**Question 2** In mathematics, there is a strict hierarchy of content. For example, the Cartesian coordinate system is introduced in Grade 7 but an algebraic description of lines must await Grade 9. Does that make sense? There are lots of questions of this kind about "readiness".

**Question 3** In English class, students read and discuss books that scholars of literature also study. In music class, students listen to and even try to play sophisticated compositions. That does not happen in math class. Why is that?

**Question 4** Here is a rabbitmath task for grade 9 or 10, though we have worked with it in grade 8. Build this animation and find the times at which the red triangle is isosceles. Does it engage you? <https://www.desmos.com/calculator/zvtdvxcwuo>

If you find any of these problems interesting or would like to hear more about my research, do not hesitate to contact me at [peter.taylor@queensu.ca](mailto:peter.taylor@queensu.ca)