Lesson: Euler’s Method for Solving Differential Equations

Teacher: Colin Mayo
Level: AP Calculus

Overview: This Alice world is essentially an “applet” that graphically demonstrate how Euler’s method works.

Objectives and Goals: (AP Standards)

APC.8 The student will apply the derivative to solve problems. This will include
   d) Geometric interpretation of differential equations via slope fields and the relationship between slope fields and the solution curves for the differential equations.

Narrative: This world can either be used by the instructor in whole-class presentation or by students as a tutorial in class or elsewhere. The world uses the differential equation dy/dx=2x with an initial value of (1, 2). The diffEq can be changed by the instructor by modifying the code. The world can be used as a demonstration in direct method or as an exploratory activity by students. The intent is to show that by decreasing stepsize, a more accurate solution is attained by at the cost of more steps and computing time.