A Perplexing Task 1

Plot the points A(6,0), B(-6,0), and C(0,4). Choose a line that intersects the triangle **only** at point C. Investigate the existence of a pattern created by the locations of the orthocenters of the triangles formed as the vertex at C moves along your line while the base, segment AB, remains fixed. Mathematically explain your conclusions.

As long as the line along which C is moved does not intersect the triangle at any point other than C, the pattern produced will always be a parabola. It is when the line goes along a side, or through the triangle, that a hyperbola is created.