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Making connections.

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Summary: This article aims to illustrate a process of making connections, not between mathematics and other activities, but within mathematics itself – between diverse parts of the subject. Novel connections are still possible in previously explored mathematics when the material happens to be unfamiliar, as may be the case for a learner at any career stage. The geometrical configuration explored in this paper, now known as “Ford circles” after Lester R. Ford, Sr. (1886–1967), is related to ideas about mutually tangent circles that were studied by, among others, Apollonius of Perga in the third century BC and by René Descartes in the 17th century. This exposition is intended to conjure the thoughts of a hypothetical mathematician attempting to find and explain some connections, in the process exploring some lines that turn out to be unproductive, and making observations that are really non sequiturs, before eventually achieving some success. The author suggests that seemingly innocent mathematical fragments can have connections to many related ideas. If a teacher is in possession of a broad subject knowledge, then the likelihood seems high that it is possible to draw out useful connections in the classroom or in well-designed projects and assignments. For this reason, the author claims that an ever-widening subject knowledge is of utmost importance in a teacher’s program of professional development. (ERIC)

Classification: G40 A30

Keywords: geometric concepts; mutually tangent circles