1154-M5-2686   **Robert A. Cohen*** (`rcohen@western.edu`), 1 Western Way, Gunnison, CO 81231. *Proofs by Board Games.* Preliminary report.

An interesting, simply stated, and easily accessible problem can serve as a springboard into a wide variety of mathematical discoveries at many levels. This talk will highlight one such problem and share several avenues of mathematical exploration that may follow. The problem begins with a simple game board that, while analyzing from a probabilistic standpoint, leads to a fascinating infinite sum involving the Fibonacci sequence. It has been shared with and studied by students from precalculus courses to calculus-based probability courses, and has even been the topic of an undergraduate research project. We will generalize the results to an extended class of similar game boards while also changing the rules of play, which will ultimately give us the ability to generate infinite sums that, without the game boards, would be very difficult to justify. (Received September 17, 2019)