

# Maths Circle Explorations: Session 1

October 2021

4. Grab a chessboard, or create one on a piece of paper by drawing an  $8 \times 8$  grid, and shading alternate squares. Recall that a knight is a chess piece that moves two steps parallel to one edge of the board and one step perpendicular to the same edge in any given move. Can a knight starting out at one corner of the board (square a1) reach the diagonally opposite corner (square h8) visiting each square on the chessboard exactly once along the way? You may want to start by asking the same question for square chessboards of size  $3 \times 3$ ,  $4 \times 4$ , and so on (an  $m \times n$  chessboard is simply a grid with  $m$  rows and  $n$  columns).