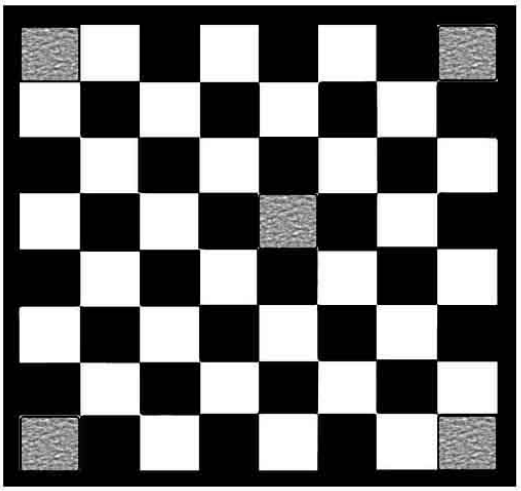
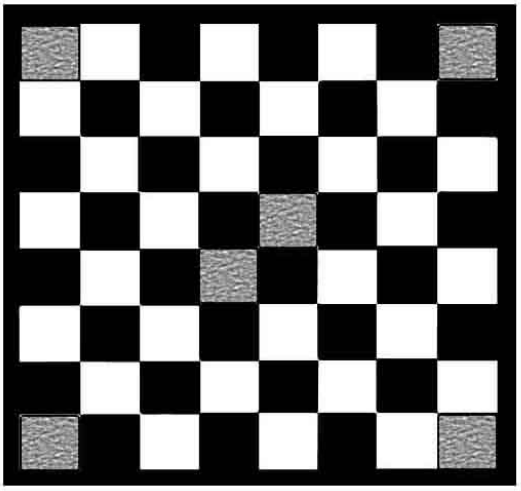
Handout: Blanked Out Chessboards

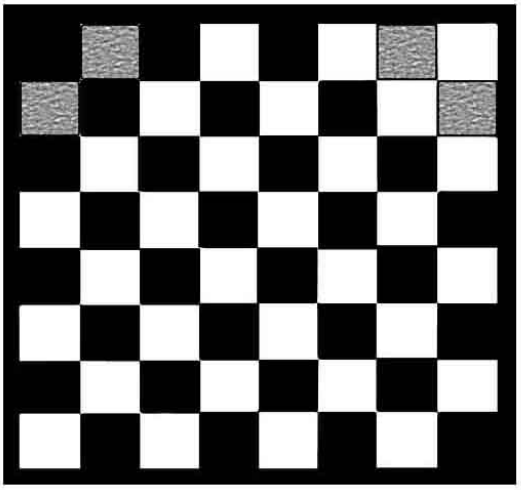
1. With the five squares below already removed, can you cover the rest of the board with dominoes?



2. How about this board with six squares already covered?



3. Perhaps there are there some general statements that can be made. What would happen if we tried removing any odd number of squares?
4. Can we always cover the board with dominos if we remove an even number of squares?
5. What if we remove the same number of black and white squares? Can you think of a situation where we remove 2 blacks and 2 whites, but cannot cover the rest of the board with dominoes? Think about this for a bit before turning to the next page!



In the above image, the top left and top right squares have been cut off from the rest of the board. So obviously we cannot cover the rest of the board with dominoes.

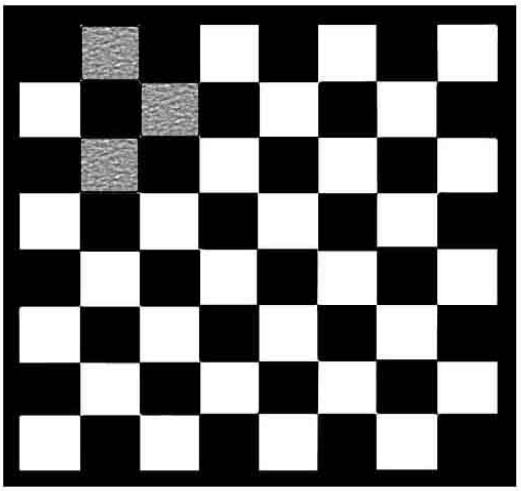
6. Try removing 2 white squares and 2 black squares, but the rest of the board has to be connected.

   Can you make another problem situation? Have a play around.

7. Make a conjecture about removing 2 black squares and 2 white squares.

8. How about if we remove 3 blacks and 3 whites? Can you find a problem situation?

9. Consider the chessboard with the three whites indicated covered and three random black squares on the other side of the board.



Can you see a problem with trying to cover this with dominos?