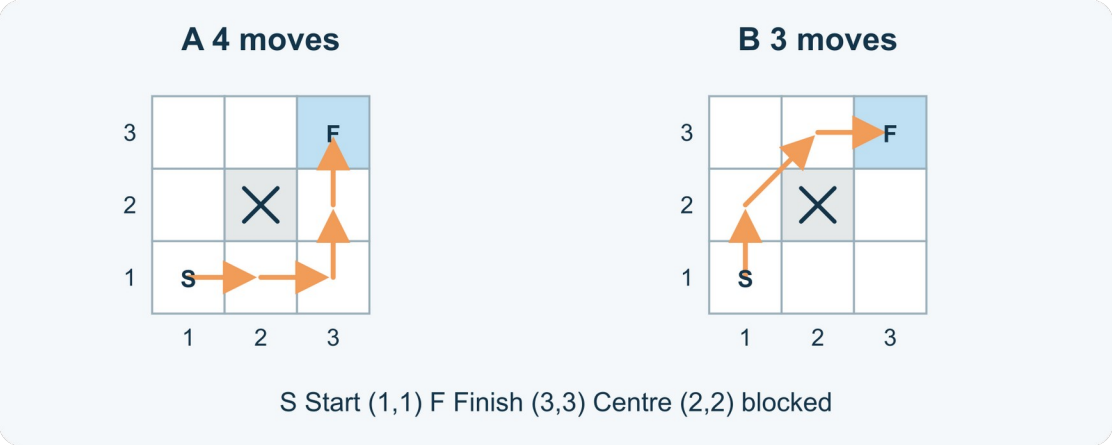
Change one movement rule

What changes when a puzzle allows diagonal moves?

Compare two versions of a complete paper puzzle. Keep the board and goal the same while changing the allowed movement.

Investigate | 10-20 minutes, or one route | Paper and a pen or pencil, A finger or small paper marker

Start here Draw a 3-by-3 grid. Number columns 1 to 3 from left to right and rows 1 to 3 from bottom to top. Mark Start at (1,1), Finish at (3,3) and block (2,2).



Same board, different routes

1 Agree the first rule

Begin at Start. One move goes one square up, down, left or right. Stay inside the grid and never land on the blocked square. The goal is to reach Finish; there is no timer.

2 Record a route

Trace a route and count moves between squares, not the number of squares visited. The supplied four-move route works if you prefer to examine a complete example.

3 Change only movement

Now also allow a move to a diagonally adjacent square. Passing a corner is allowed in this version; landing on (2,2) remains forbidden. Keep the same Start, Finish and board. Find or trace a route again.

4 Explain a consequence

Compare your routes. Name what the new rule permits. A shorter route may be interesting, but you can also discuss which choices change or whether you would prefer another rule.

Worked puzzle four moves or three

This is a constructed puzzle with exact rules, not a study of player preferences. Coordinates identify squares as (column,row).

• Up/down/left/right: (1,1) → (2,1) → (3,1) → (3,2) → (3,3). Four moves.

• With diagonals: (1,1) → (1,2) → (2,3) → (3,3). Three moves; no landing on the centre.

• Two diagonal moves would pass through (2,2), so they do not solve this board under the stated rule.

What this example can show These paths demonstrate the stated puzzle. They do not show that diagonal movement makes every game easier, fairer or more enjoyable.

A different way

Trace the two supplied paths with a finger, have the coordinates read aloud, or compare just the first move. No game account or digital game is needed.

If you want to go further

Move one blocked square and test both rules again. Keep the original board as a reference. Can you explain whether your conclusion still holds?

Something to notice

Which difference came from the rule, and which came from the route I chose?

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