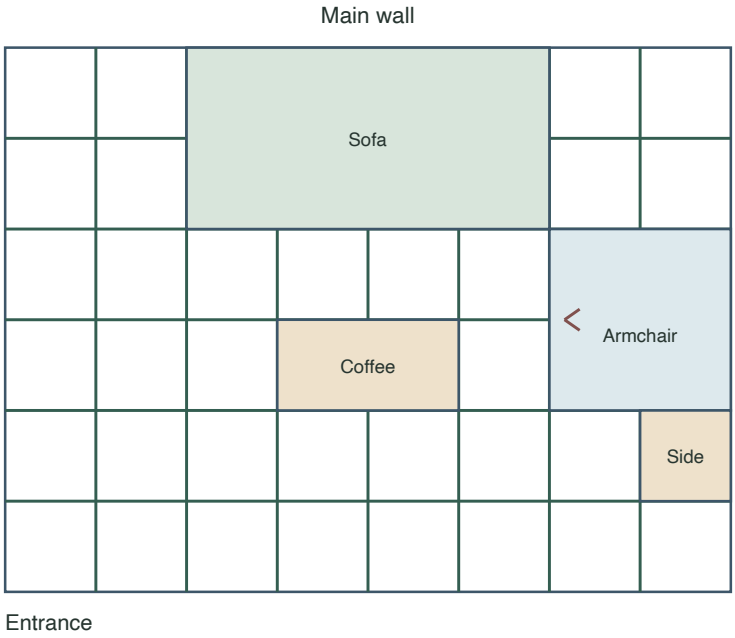
Graph Paper Furniture Cutouts

Reference I Worked example I LETTER

Original prompt

A small living room is planned on a grid 8 squares wide and 6 squares deep. Draw and cut out a sofa (4 by 2 squares), an armchair (2 by 2 squares), a coffee table (2 by 1 squares) and a side table (1 by 1 square), then arrange them on the room grid.

Room and cutout grids use the same 12 mm square on these sheets. Print at Actual Size when using separate sheets.



Answer

Draw each footprint on grid lines: sofa 4 wide by 2 deep, armchair 2 by 2, coffee table 2 by 1, side table 1 by 1. Cut just outside each outline and label each piece. On the 8 by 6 room grid, mark the main wall along the top edge and the entrance at the bottom-left corner. Place the sofa against the top wall, centred, so it covers 4 squares across and 2 down. Put the armchair to the right of the sofa, facing the coffee table. Set the coffee table in front of the sofa, one square clear of it. Put the side table beside the armchair. Check that a path at least one square wide runs from the entrance to the seating.

Reasoning

Each footprint is drawn on grid lines so its size can be counted in squares. Placing the sofa against the main wall leaves the centre open for the coffee table and keeps the entrance path clear. The one-square gap between sofa and table and the one-square walkway make the arrangement readable on the grid.

Check

Count the squares each cutout covers and confirm they match the stated sizes. Trace a route from the entrance to the armchair and confirm it is at least one square wide everywhere. Confirm no two cutouts overlap and none hangs off the room grid.