

We will set up a simple board and dice that can be used for a board game. You can start with just one sprite (e.g. Scratchy the Cat).

To keep the code nice and tidy, we will use a few custom blocks (see the purple area called "More Blocks" in Scratch 2.0). We will define three custom blocks: square(n), makeboard(n) and makelist(n). See page 2 for the rest of the code.

**square(n)** – this draws a square where the length of each side is the number n.

```

define square n
  pen down
  repeat 4
    move n steps
    turn 90 degrees
  
```

**makeboard(n)** - this draws 25 squares to make a grid for the board game.

```

define makeboard n
  hide
  pen up
  go to x: n * -5 / 2 y: n * -5 / 2
  point in direction 0
  repeat 5
    repeat 5
      square n
      change x by n
    pen up
    change x by n * -5
    change y by n
  point in direction 90
  show
  
```

**makelist(n)** – this one makes a list of the co-ordinates (x and y position) for each square. This one is tricky – see if you can understand the code. We will need these co-ordinates later so that we can tell the sprite where to move to on the board.

```

define makelist n
  delete all of xs
  repeat 5
    set i to n * -2
    repeat 5
      add i to xs
      change i by n
  delete all of ys
  set i to n * 2
  repeat 5
    repeat 5
      add i to ys
    change i by n * -1
  
```

Note that "i" is a Variable but "xs" and "ys" are Lists (go to the orange "Data" section and click on "Make a List").

When the green flag is clicked the sprite clears the screen, draws the board game and then goes to the start position.

```

when green flag clicked
  clear
  set size to 40 %
  makeboard 60
  makelist 60
  go to x: -120 y: 120
  set mysquare to 1
    
```

When the player presses the "space" key, a dice is rolled and the sprite moves forward that number of spaces.

When the sprite gets to square number 25, the game ends.

```

when space key pressed
  set dice to pick random 1 to 6
  say join You rolled a dice for 1 secs
  change mysquare by dice
  if mysquare > 25 then
    set mysquare to 25
  go to x: item mysquare of xs y: item mysquare of ys
  if mysquare = 25 then
    say THE END for 2 secs
    
```

Showing the number of each square on-screen is not easy in Scratch. You can try making another sprite that just shows the numbers 1 to 25 – see the picture. Or you could make a different sprite for each number. Or can you think of another way??

The screenshot shows a Scratch interface with a 5x5 grid of numbers from 1 to 25. A dice roll of 2 is shown above the grid. The 'mysquare' variable is set to 25. Below the grid, the 'Sprites' panel shows 'Sprite1' (a cat) and 'Sprite2' (a small cat).

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23	24	25

Now we have a very simple board game. You can improve it by adding a second player, some graphics, or different board game rules. Could you make Snakes and Ladders, Ludo or another well-known board game?