Snail Race

A random walk is a path generated through some random process.

Your direction at each step is decided by, for instance, a dice roll or coin toss.

You can also use two people to generate a random number between 0 and 3.

Therefore, for this activity, you will need to work with someone else.

1. Choose who will be person A and who will be person B.
You'll take it in turns being each, so it doesn't matter who is A for the first game, but feel free to use rock-paper-scissors (or some other zero-sum game) to decide.

1. **Generate a random number**: Each person will simultaneously hold up a number of fingers between 1 and 4. **Add the numbers together** and **find the remainder when divided by 4**.
For example, if you both hold up 3, the total is 6, leaving a remainder of 2. If one holds up 4 and the other 1, the remainder is 1.
In order to avoid any potential cooperation (and therefore compromise the randomness of the walk), the aim of person A is to generate a path to the border while the aim of person B is to stop this happening. Since you will not know what number your partner will show, there is an equal chance of your total leaving a remainder of either 0, 1, 2 or 3.

2. **Move one square-length in the direction shown by the diagram**:
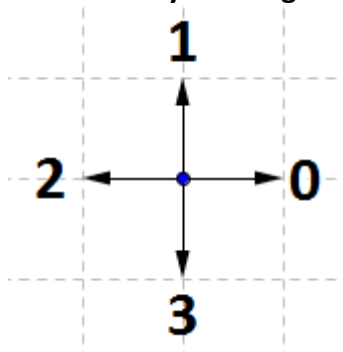
Indicate your move by drawing a line. Note that sometimes you will move back along a line you've already travelled, so it is important to keep your pencil on the page at all times so you don't lose track of your current position. You can generate random numbers one-handed.

3. Once everyone in the room has generated a path that reaches the border, **the game is finished**.
The aim for person A is to reach the border before anyone else in the group, so whichever group reaches the border first, your person A has won and your person B has lost.
*The aim for person B is for person A to reach the border after everyone else in the group, so whoever comes in last, your person B has won and your person A has lost.*
You can then play again, but swap around who gets to be person A and person B.

Note: this game can be played with squared paper – the border should be a square centred on the starting point. A border of 5 square-lengths out from the starting point is a good starting size, but you can experiment with different sizes, or have points for 'first to 3 away', 'first to 5 away', etc.

Snail Race Treasure Hunt

Following the method described in 'Snail Race', use the grid below, moving one square-length for every turn (each pair generate their random numbers at the same time).
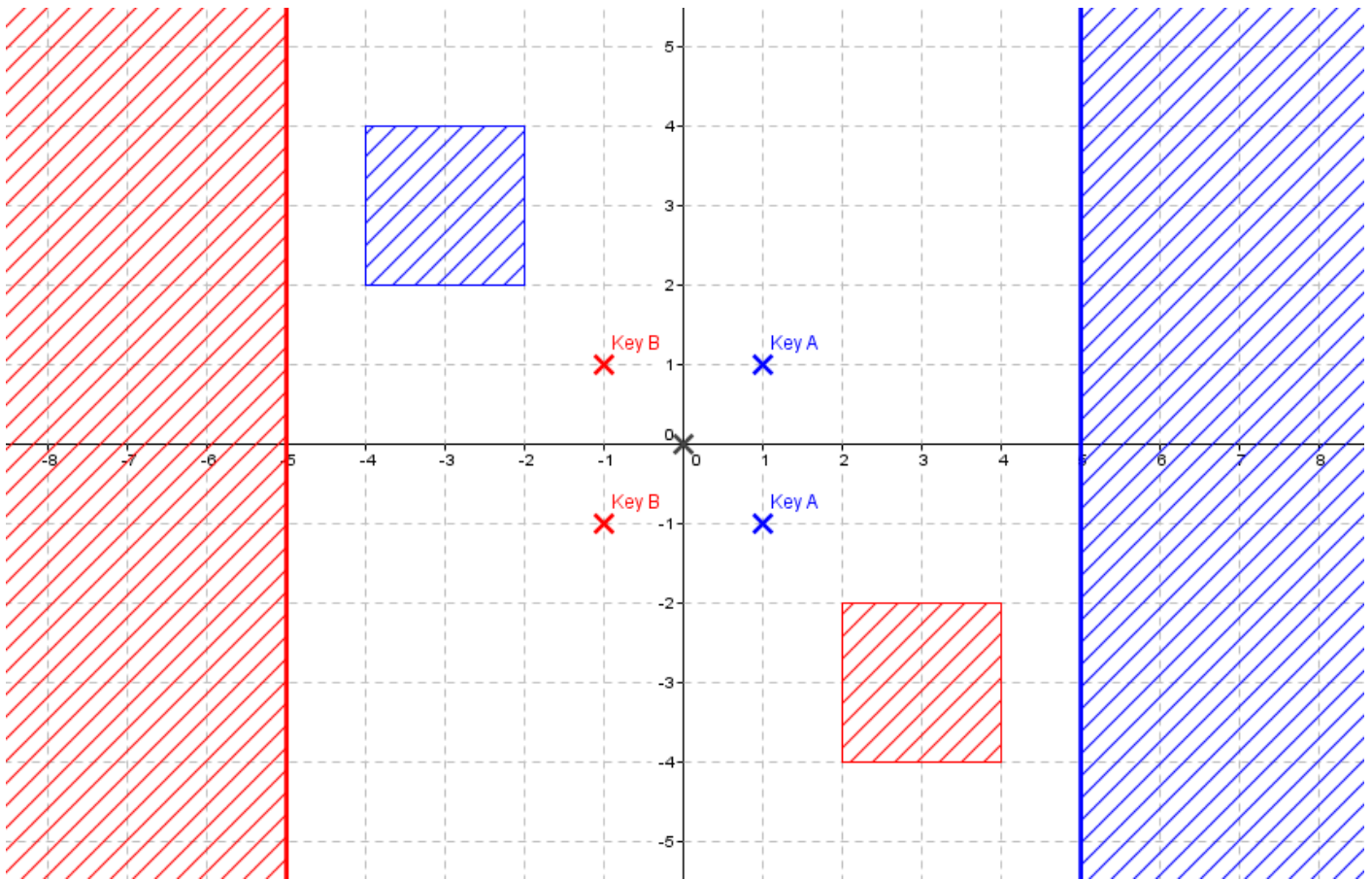
Player A is Blue. Player B is Red.
Whenever your route **crosses into** the blue section on the right (that is, you move *past* the boundary line from outside to inside), player A gets a point.
Whenever your route **crosses into** the red section on the left, player B gets a point.

If you end up at a **key** of your colour, you may claim 2 points at that moment.
Or, you can hold off on claiming your points until you reach the second key, at which time (provided you didn't already claim your points) you can claim 8 points in total. You must decide at the moment you reach the key whether you want to take the 2 points or risk waiting for the second. If you take the 2 points initially, and then land on a second, you can only take 2 points.

In addition to getting points for crossing over into an area of your colour, if you end up on the 2 by 2 **square** of your colour, you can claim a point from your opponent for every move you remain in contact with the square (inside or on the boundary).