Cat and Mouse

http://o.ooli.ca/en/scratchgames/cat

In this game, you are a mouse who needs to get through a maze to get to the cheese. Don't get caught by the cat though!

The program you are given has a blank white background. There are three sprites: the mouse, a cat, and some cheese.

Useful blocks for this exercise

Motion
- move [ ] steps
- point towards [ ] mouse-pointer
- turn [ ] degrees
- point in direction [ ]
- move [ ] steps
- if on edge, bounce

Looks
- show
- hide

Events
- when [ ] clicked

Sensing
- touching color [ ]
- touching [ ] ?
- distance to [ ]

Operators
- [ ] > [ ]
- [ ] or [ ]
- pick random [ ] to [ ] * [ ]
1. The Mouse
Let’s start by writing a program to make the mouse move. We’ll control the mouse by having it chase after the mouse pointer. Do this by having it turn towards the mouse pointer and then moving forwards. Can you now get the mouse to move around the screen?

2. Cheese
The mouse should be able to eat the cheese. Do this by making the cheese disappear when the mouse touches it. Write a program for the cheese sprite. When it is touched by the mouse, it should hide itself. When the green flag is clicked, the cheese should reappear.

3. The Cat
Write a program for the cat so that it moves back and forth across the screen. It should keep moving in one direction. When it reaches the edge of the stage, the cat should bounce and move in the other direction.

4. Caught!
Change the program so that when the mouse touches the cat, the game will end and the program will stop.

5. Walls
Let’s make the game more complicated by adding a maze. Click on the stage, and change the backdrop to the maze backdrop. There’s a problem though. The mouse can run through the walls!

6. The Cat and Walls
The cat is still ignoring the walls when it moves back and forth. Change the program to be like the program for the mouse. If the cat moves and touches a wall, it should move backwards, back to where it started.

7. Walking the Maze
We’re now going to make the cat smart enough to walk through the maze itself. In the maze, you can only go up, down, left, and right. If the cat walks around and hits a wall or a corner, it can turn up, down, left, or right. If it does this, it will keep walking through the maze.

Try It: Less Jumpy
When the mouse gets near the mouse pointer, it starts moving back and forth. This happens because when it moves toward the mouse pointer, it goes too far and ends up on the other side of the mouse pointer. Then it turns around and moves again, going back to the start. Can you stop this from happening?