

# Pill bug lab report



**ASSIGN  
BUSTER**

Pill bugs are said to have some sort of turn alternation built in their cognitive functions, which causes them to take a zig-zag route rather than going along in a straight line for a long distance (Ono Tomohiro & Takagi Yuika, 2006). Distance does not play a factor in the pill bugs making turn alternation even if it is a forced turn, pill bugs will still make a zig-zag motion (Kupfermann, 1966). The zig-zag motion shows that pill bugs don't have the ability to make two consecutive right turns.

In this experiment we tested the pill bug *Armadillidium vulgare* to see if it had the ability to make two consecutive right turns. We expected the pill bugs to go on either path; one path with all left turns and the other with all right turns, to prove the turn alternation theory wrong. I expected the pill bugs to follow through with this and go either way because of the food we had placed at each end of both paths would give the pill bugs some incentive on making it all the way. Control Experimental Our group made two separate mazes; one was the control while the other was the experimental.

Each maze had two paths, the path on the right side and the path on the left side. The right side had only right turns while the left side had only left turns. In the experimental maze there was a longer left side to see if the pill bugs became discouraged the farther they went to their food so that they may turn around and go down the other path. There was incentive at the end of each path; the incentive that we used was dead leaves, which is their favorite thing to feast on. In the mazes we then took 10 pill bugs and put them into an open square that was carved into Styrofoam board.

After the pill bugs were placed into the carved maze, they then waited three hours and evaluated to see where the pill bugs would end up. Pill Bugs

responded to the maze we constructed and did various movements. Out of all our trials, 23% of the pill bugs remained at the start and curled up into a ball (Figure 1). While 18% actually made two consecutive right turns and completed the right side of the maze. Based on the results from each trial, there wasn't that great of a difference between the pill bugs going right or left (Figure 1). The results were very consistent with our group's hypothesis.

There were some pill bugs that took a left turn but then turned back around and went down the path on the right side. From that, it seemed like they forgot which way they were headed, thus proving that pill bugs suffer from some form of short-term memory (Kupfermann, 1966). This then shows that pill bugs can go either way, it is only dependent on if the pill bug knows where it is going. It might be the reason why certain pill bugs cannot make two consecutive right turns because they go one way and after a distance, forget where they are then they are subject to turning around and going back the way they came.

There are many ways to improve this test, next time we should possibly use more pill bugs and do more trials to get a better estimate on how the pill bugs are thinking. Or we could make the maze longer and have one side in a zig-zag motion to see if the pill bugs really do follow a turn alternation in their movement, thus concluding why pill bugs sometimes do not make two consecutive right turns (Ono Tomohiro & Takagi Yuika, 2006).