

# Super Worm Maze: By Megan Fletcher and Courtney Wraa

## Introduction to Superworms:

The Super Worm species is *Zophobas Morio*, and they are worm larvae of the darling beetle (#1). The life cycle of the super worm has 4 stages; Egg, Larvae (Superworm), Pupae, then the Darkling Beetles. The Larvae or superworm cycle lasts for about six months until they start to pupate (#2). The superworms normally eat fruits like apples and vegetables like potatoes, sweet potatoes and carrots, they also eat oats and wheat bran (#3)

**Hypothesis:** We predict that all the worms will follow the “wall” to whichever trail they follow. We predict this because of previous observation, the worms tend to follow the edge of their enclosure. As the worms follow the trail they will stop to eat the apples along the trail. The worms that choose trail “A” will get out of the maze with the fastest time.

**Method:** We selected four super worms that had been deprived of food for three days and had them negotiate a maze ( see figure 1, and 2). To identify the meal worms we marked each a different color, black, blue, red and left one blank. There were three pathways to the maze, each with apples along the path. At the end of the maze there were more apples. This way we could see if the apples would guide the mealworms through the maze. To track the progress of the mealworms, we marked the bottom of the box every two inches and timed them every five minutes, ten minutes, and twelve minutes.

**Results:** Two out of the four mealworms stayed in the neutral zone for the whole twelve minutes (Blue and Red; Table 1). Only one mealworm (Black) completed the maze, and one other mealworm made it 6 inches into maze C and then turned around towards the neutral zone.

Table #1: This table shows where each superworm was, at each minute.

Time	Black	Blue	Red	Blank
1	Neutral	Neutral	Neutral	Neutral
2	Neutral	Neutral	Neutral	Neutral
3	Trail C	Neutral	Neutral	Neutral
4	4in in Trail C	Neutral	Neutral	Neutral
5	10in in Trail C	Neutral	Neutral	Neutral
6	Black Finished the (5.42 minutes)	Crawling side of box	Neutral staying still	Neutral staying still
7	At finish eating apples	Crawling up the side of the box	Neutral moving slowly	Neutral moving slowly
8	At finish	On the side of the box	Hasn't moved	In trail A but going in the trail backwards
9	At finish	On the side of the wall	Hasn't moved	Stopped at first apple distraction
10	Crawling up the wall	Tried to escape the maze box	Hasn't moved	4in in Trail A
11	Eating at finish	Exploring neutral	Moving toward Trail C	6in in Trail A
12	Eating at finish	Exploring neutral	Moving slowly to Trail C	Turned around Trail A toward neutral

Figure #1: This figure shows the superworms in the neutral zones of the maze.



Figure #2: This figure shows the way the maze was set up.



Figure #3: this figure shows what a Superworm looks like.

**Discussion:** In conclusion the mealworms did not follow the maze because of the food set in place along the maze. We originally predicted that the mealworms would follow the food through the maze. After completing the experiment we deduced that food was not a determining factor. We never tested this experiment with different foods. In the future we would like to test this with different foods, that may be more enticing to the worms. As predicted the mealworms followed the edge of the box, this includes the walls of the maze that we set up.

## Sources

- (1) “Superworms A Varolina Caresheet.” *Carolina Biological Supply Company*, “Superworms.” retrieved May, 09 2021
- (2) *Timberline*, timberlinefresh.com. Retrieved May, 09 2021
- (3) “Superworms.” *Ward's Science*, 8 Sept. 2008, [www.sargentwelch.com](http://www.sargentwelch.com). Retrieved May, 09