HAILEY MCDONOUGH, MARK FLOOD, and PAMELA HUGGINS, Biology Program, Fairmont State University, Fairmont, WV, 26554. The effect of caffeine concentrations on the learning and memory retention of gold fish.

The objective of this study was to test and observe how different concentrations caffeine effect the memory & learning abilities of a goldfish. Caffeine amounts (Group 1- 0g, Group 2- 0.05 g., Group 3- 0.12 g, and Group 4- 0.20 g.) were only administered during testing sessions in 7.5 L tanks. Caffeine groups were held for 3 minutes to ensure absorption. Plastic mesh canvas maze was used to observe and test the learning and memory skills of the fish. All groups were given 6 minutes to complete the maze. The maze was a reward based system, with food at the end. The memory of goldfish was measured by the time/rate at which these fish go through the maze, along with observational data. All groups showed an overall decline trend in times, indicating learning and memory retention occurring. The results prove that groups exposed to caffeine learned sooner than the control group. Group 3 had the fastest average time to complete the maze, and consistently had more fish that went through the hole in compared to other groups. Looking at a previously done study, caffeine concentrations in group 3 are highly effective in promoting memory retention & learning. Due to deaths in that occurred throughout and a small sample size, this study should be replicated with a larger sample size.