

## Learning Through Trial & Error

Animal behaviors can be classified as instinctive or learned. Instinctive behaviors are those that animals are born knowing how to do. Learned behaviors are those that an animal picks up through trial and error or by interacting with their parents or other animals. Whether instinctive or learned, behaviors are connected to survival needs.

### Objective

Observe how a hamster uses trial and error to find its way through a maze.

### Materials

- 2 large pieces of foam board (about 1 meter square)
- some pins or nails
- a dull knife
- a hamster
- a hamster cage
- wire mesh
- a timer
- an adult helper

**Safety Notice:** All applicable laboratory safety rules must be followed. Students should not perform any experimental activity without the teacher's supervision and express permission. Students must follow safety guidelines and wear appropriate protective gear.

### Procedure

1. Sketch a diagram of a maze to use as your blueprint for building. Mark the opposite corners of the maze where the hamster will start and finish and check that there is a path connecting those two points. Be sure to include a number of dead ends and turns.

2. Set both pieces of foam board flat on the ground. Cut four long strips, about ten centimeters wide, from one board. Pin these strips standing upright on the edges of the other board. These will serve as the outer walls of the maze.
3. To build the interior of the maze, cut the rest of the board to make eight to twelve strips about ten centimeters wide. Pin these strips to the big board just as you did with the outer walls, but arrange them according to the maze you designed in step 1. If you are concerned about the hamster escaping, place the wire mesh screen over the top of the maze to keep the hamster inside.
4. Place the hamster's favorite food at the finishing point of the maze and position the hamster at the starting point. Use a timer to time the hamster as it tries to reach the food at the end. Record the time and your observations in the table below. Repeat this step once a day for three days.

### Conclusions

- Was there evidence to support the idea that the hamster used trial and error to make its way through the maze? Explain.

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- Use the data you collected to predict how the hamster would perform in the maze over three more days. What factors would influence this estimate?

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- What does the hamster's mastery of the maze say about its ability to meet its survival needs?

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	Time	Observations
Day 1		
Day 2		
Day 3		