

Don't Bump into Me! Pre-Quiz **Answer Key**

1. How do bats sense distance?

Bats sense distance using sound. They emit sound waves and receive back reflected waves. The time it takes to receive the waves back provides them with a very good estimate of the distance. This is exactly how the ultrasonic sensor estimates distance.

2. Describe how bats sense distance in a “stimulus-sensor-coordinator-effector-response” framework.

For bats: calls made by mouth > ears hear the reflected waves > brain decides what to do > wing muscles move > flight path changed, as needed.

Bats use this same method to catch mosquitoes, too!

3. Provide an example of “stimulus-sensor-coordinator-effector-response” framework using an NXT ultrasonic sensor.

Example: object in front of the ultrasonic sensor > ultrasonic sensor > LEGO brick/computer > robot motor > robot moves