

Lesson 2 Explore Wildlife Wonders

The Mind of an Octopus

Here is an animal with poison like a snake, a hard and pointed mouth like a bird, and ink like a pen. It can weigh as much as an adult human and stretch as long as a car. Yet it can put its boneless body through a hole the size of an orange. It can change color and shape, and it can taste with its skin. This animal is called an octopus.

The octopus looks so alien to the people of the West that it has caused dislike or even horror in them. The dislike or horror helped create the image of an octopus as an evil creature living in the deep sea. For example, the Kraken, a sea monster in old Icelandic tales, looks just like an enormous octopus. Another example is Ursula, the sea witch featured in the famous tale, *The Little Mermaid*. To this day, it is difficult for us to imagine that octopuses and humans share any meaningful similarities.

During the past few decades, however, scientists have begun to find more and more similarities between octopuses and humans. One of the most interesting ones is intelligence. Octopuses are smart. The best evidence is their ability to camouflage themselves. An octopus can change its color, pattern, and texture, and the changes are carried out almost instantly. In terms of speed and the diversity of change, no other animal can rival octopuses. Even chameleons can utilize only a handful of fixed patterns.

The main purpose of these changes is to avoid detection by their hunters or their prey. When an octopus encounters its hunter or prey, it must decide very quickly which color, pattern, and texture to choose. Such a decision implies that it has gained sufficient knowledge of the surrounding animals and applies it to survive. To acquire knowledge and apply it for a particular purpose is a sure sign of intelligence.

Another sign of the intelligence of the octopus is its use of tools. In the lab, octopuses use tools to get food rewards. In the wild, they use stones to create walls to protect the entrances to their homes. They use not only stones but anything they can find to protect themselves. The most impressive example of octopuses using tools came in 2009 in Indonesia. A few octopuses were found to collect coconut shells. They cleaned the shells with bursts of water, carried them to a new location, and piled them as a shelter. Traveling with the shells under their bodies forced them to walk slowly along the sea floor. This made the octopuses more exposed to predators. But it seems that they were willing to take that risk for greater future protection. The scientists who discovered the behavior argue that this is clear evidence of octopuses using tools.

Octopuses' use of tools can be found in their love of toys and puzzles, too. They are curious about new objects, and do not like getting bored. That is why aquariums try to come up with ideas to keep their octopuses busy. Some aquariums hide food inside a big doll and let the octopus break up the toy to get the food. Others offer plastic building blocks for their octopuses to play with.

Our knowledge about the octopus is still very limited. Thanks to the efforts of scientists, however, it is expanding year by year. One of the most impressive new findings about the octopus is that it seems to have feelings. Of course, it is impossible for us to know exactly what they feel, but a few of their changes in skin color seem to be linked to their feelings. For example, a giant Pacific octopus that turns red seems to be excited, while it is white when it is relaxed. An octopus presented with a difficult puzzle often undergoes several rapid changes in color. The octopus seems to be worried that it may not solve the problem.

Few scientists today deny that octopuses are intelligent animals. Perhaps it is time that we stopped thinking of them as alien creatures and acknowledged them as intelligent animals like us. There is still so much we do not know about the octopus. Aren't you curious about what is inside their mind?

Further Reading

The Cambridge Declaration of Consciousness

In 2012, scientists met at the University of Cambridge to talk about consciousness in humans and animals. Consciousness means having subjective experiences or awareness. The scientists found that animals have emotions and can have consciousness like humans. For example, African grey parrots have shown evidence of consciousness that is almost as advanced as that of humans. Even octopuses have the brain structures needed for subjective experiences. Drugs that affect human consciousness also affect some animals in similar ways. So, the scientists concluded that consciousness is not just for humans. Animals can have it too. Since the Cambridge Declaration, research on animal consciousness has been actively carried out. Scientists are still working to find out exactly how animal consciousness works. Not all animals are conscious, but those with complex nervous systems are more likely to be. All things considered, it would be a wise and safe choice to assume that animals have feelings and to treat them with respect and kindness.