



Activity 9

Observe Like a Scientist

How Animals Use Communication Systems

Human communication has changed a lot since people first started sharing information using written symbols. Technology systems allow us to call, text, and email messages over great distances. Animals do not use technology systems as we do, but they can still use other systems to communicate.



Photo Credit: inigolai-Photography / Shutterstock.com

Consider the tiny ant. Some ants live in colonies of thousands. Ants have developed systems that help them divide their work. Groups of ants within a colony have different roles. How do you think they communicate with each other? Would you believe they use their sense of smell? Nurse ants send smelly messages to scout ants if the food is low, ants search for food and then guide to it. The soldier ants also use smells to communicate if there is danger nearby.

Although animals do not speak like humans, they communicate with each other using their own **communication systems**. Animals can use different senses to send and receive information. What senses do you think whales use to communicate? **Read** the following text about whales. Highlight the facts that help you understand the ways whales communicate.

Did you know that humpback whales sing underwater to communicate with each other? These whales sing a wide range of notes and also a series of phrases in a pattern. In other words, humpback whales do not just make sounds, they make music.



Humpback whales sing during the winter months when it is mating season. They also sing during the summer months, or feeding season. However, their songs have a different sound depending on the season.

Have you ever heard people singing in a group? Some voices have a high **pitch**, or sound, while other people's voices are lower.

Explain how some animals use sound to receive and transmit information



Talk Together How are human and ant communication systems similar? How are they different?



Activity 10

Analyze Like a Scientist

Technology Inspired by Nature

Have you ever known someone who could not see because they were blind? As you read about how scientists were inspired by bat echolocation, **think** of other animal communication techniques that might help people in your community.

Bat-Inspired Technology

Many animals, such as bats, use sound to communicate with each other. But sound can be used for other purposes. Bats also use sound to get information about their surroundings. Bats use their ears to “see” in the dark. How do they do this? They use their ears for something called **echolocation**. Notice the two smaller words that make up this bigger word—*echo* and *location*. Bats make a high-pitched sound and then listen for an echo, or reflected sound. When the bat hears the reflected sound, it knows that there is something nearby. Bats use echoes to tell where and how far away objects are.



A Bat-Inspired Cane

continue, Technology Inspired by Nature

Scientists have been inspired by this adaptation to find ways to help blind people detect their surroundings. Scientists have created a cane that emits a high-pitched sound, just like bats do. The sound's pitch is too high for humans to hear. This special cane then uses vibrations to communicate information about the world to the person using it. As a person is walking with the cane, an echo from the sound is picked up by the cane. The echo is turned into vibrations that the person can feel with their thumb. The vibrating buttons tell the person the direction of the obstacles around them and how close the object is to them.

How did scientists use an animal adaptation to design a new invention?

How are the cane and bat echolocation similar?
