SOUNDS LIKE LEARNING

This activity shows how one animal (the bat) makes use of a physical adaptation to obtain food using sound. This game introduces the idea of echolocation, or using sound to navigate.

MATERIALS NEEDED

Blindfolds

PRIOR TO ACTIVITY

Before playing, ask your group if they know how a bat finds its prey in the dark. Bats emit ultrasonic squeaks, which echo off surrounding objects. Bats interpret these echoes to determine the size, shape, and distance to an object. By squeaking very frequently (several times a second), the bat can tell if objects are moving. This is the same basic mechanism as the sonar used by submarines, and in fish-finders.

THE ACTIVITY

1. Play in an open clearing, or a grassy part of the schoolyard. Select two students to be bats - these two will be blindfolded. The others will be moths. The bats try to catch their prey by listening for them, tracking them down and finally tagging them. The game begins with the bats saying, "bat". The moths reply "moth". This is the method the bats use to find and tag the moths.
2. Each time a bat says “bat”, they can move three steps. Each time a moth says “moth”, they can move one step – bats fly faster than moths!
3. If a moth is tagged, he or she is out of the game for one minute, at which time they could reenter the game. For variety, you could experiment with different numbers of bats or moths.
4. For older students, or to add an element of difficulty if the basic game is too easy, add trees! Pick some students to be stationary in the playing area, with arms outstretched. When a bat calls, they respond, in a medium-loud voice, “TREE!” Smart moths will use the trees as cover. If a bat runs into a tree, they are out for one minute.

TIPS AND EXTENSIONS
Talk with your group about what this game shows us about adaptations! Discuss the adaptive value of echolocation in the bat's lifestyle. What kind of adaptation is this? The ability to produce the sounds and to hear and interpret them is a physical adaptation. The bat may use different behavioural strategies to catch its prey using echolocation. Some other interesting bat behaviour - many bats use the tail membrane as a net to scoop insects. They use their wings like hands to eat their prey in the air. Big insects have their wings or heads bitten off and are dispatched later on the ground.

Some moths show counter-adaptations to bats. Some moths emit sounds of their own to "jam" the echolocation of bats. To compensate, bats can change the sounds they make, but then the moths compensate over time as well.

If you are interested in sharing your project’s results, or would like more ideas on teaching outside at your school, please contact FortWhyte Alive by email at education@fortwhyte.org.