

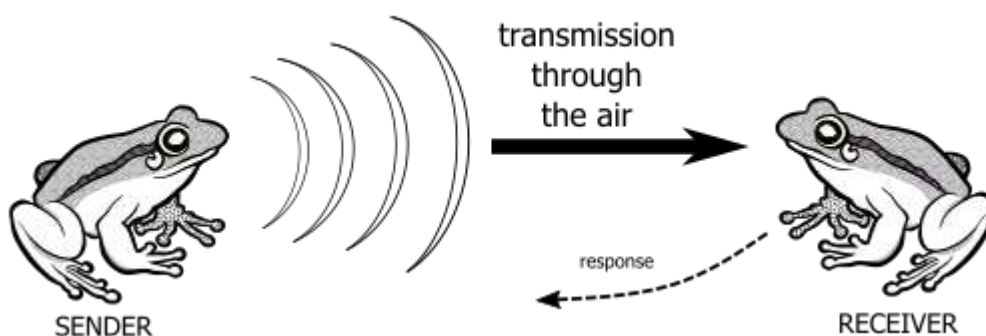
Lesson Plan

NEUROHEADWAY

Neuroscience Into Education

Animal Sounds

- All animals produce sounds by moving (footsteps, wing flapping etc.), breathing, chewing, grooming or other everyday activities.
- Some of these sounds are special – they are produced deliberately, to pass information to other animals, which we call communicating. Those will be discussed in this module.
- Human speech is related, but much more complex than what we hear in other animals. It won't be covered today.
- Any animal communication is an attempt of one individual (the emitter, or caller) to influence the behaviour of another (the receiver, or listener).



- Sounds can travel through the air or water, so they are used by terrestrial and aquatic animals.
- A single animal can produce different sounds, containing different messages, according to their intent.
- A single sound can have more than one meaning, depending on who is listening or in which situation it is used.
- Sounds used for communication are messages which contain information about the emitter's intent. E.g:
 - A dog growling aggressively is informing that it will attack if the intruder won't back away.
 - A male cicada chirping is a message to the female that he is ready and willing to mate.
- Sounds spread instantly through the environment and the caller can be located precisely, enabling those activities for which partners need to be close together (mating, defending each other, competing etc.).

- Can you think of a situation where that is bad for the caller?
 - The answer: not only the intended receiver can hear the calls, but every animal in the hearing range, including predators, and they can also orient by sound to find the caller.
 - Every mode of communication has its benefits and drawbacks, so each species has a certain strategy how to use sound – be more silent, call only rarely or during certain part of the day, combine with other modes of communication etc.

Activity #1

Connect each sound you hear with an animal and try to figure out what function the sound might have. Note: the same sound can have more than one function, depending on the listener or the context.

Link to the sound	Animal	Picture	Function
Wikimedia Commons - OGA	cat		- reassuring children - self-soothing - expressing anxiety
Xeno-canto.org	starling		- attracting a mate (female listeners) - establishing a territory (male listeners)
Wikimedia Commons - OGG	hissing cockroach		startling the intruder
Xeno-canto.org	jay		alerting other animals of danger
U.S. Fish & Wildlife Service – MP3	rattlesnake		warning the intruder
Wikimedia Commons - OGG	bat		scanning the surroundings and locating prey (replaces sight, not used for communication) Note: bat clicks are above the limit of human hearing; they are reduced in pitch so you can hear them. Bats also use sounds to call mates, those are a bit lower in pitch and sometimes audible.
Sarasota Dolphin Research Foundation – MP3	dolphin		- signalling identity and location to others - keeping the group together - signalling emotional states to others (presumably)

