



A meadow on a hot summer day is buzzing with life. Grasshoppers are among the most obvious examples, catapulting in every direction as a hiker passes by.

Take a closer look at these large, herbivorous insects. As they chew on foliage, they keep a wary eye out for ants, spiders, birds, mice, and other predators. Their green or brownish colors provide camouflage, and when threatened, they spew a brown defensive fluid called “tobacco juice.” And, of course, they jump. As they do so, they extend their wings and emit rattles or clicks that startle a would-be predator.

Now shift your gaze to the plant. Although it cannot move away from hungry insects, it does possess an arsenal of invisible defenses. For example, leaf damage triggers the release of protective chemicals that travel along netlike veins (look for them on the cover image). The next insect to nibble the plant will pay the price — the leaves are now bad-tasting or perhaps even poisonous.

Zoom back out to the meadow now, and take a moment to appreciate that every species you see is integrated into one vast network of life. What do these species have in common, and how are they different? The answers lie in the study of biology.



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