

## 7 HEADS OR TAILS?

When you shoot at a moving target you must not aim at the target, but at the point the target will be when the bullet arrives. This slide shows two brightly colored, easy to see insects: a butterfly at the left, and a moth at the right.

An experienced bird swoops down and aims its strike to the *left* of these insects. The markings on the insects and position of their heads makes the bird expect the frightened prey to take off in that direction. *But will they?* Examine the slides carefully.

Find the false head, eyes and wings on the moth. Find the false head, white "eyes" and "antennae" on the butterfly. *Which is more conspicuous on each of these insects, the true head or the false head? When frightened, both of these insects take off to the right!*

*Can you explain the adaptive advantage of such deception? Is camouflage or mimicry possibly involved?*

## 8 SURPRISE!

The insect in this slide is a dull gray. When motionless, it is well camouflaged. Then it starts to move. A flying bird, attracted by the motion, dives to the attack. The insect's eyes detect the large, approaching shadow. Its brain responds to the danger and produces an inherited reflex. The insect spreads its gray wings and exposes its underwings. The markings on the underwings of the moth resemble the eyes of a very big animal. The

bird's instinct and experience tells it to avoid the strike. Anything with such large eyes, so far apart, must be too big and too ferocious to attack.

Here we see two mechanisms for survival in the same insect: camouflage when it's motionless; mimicry and an inherited reflex when it's in motion.

### FOR FURTHER STUDY:

*Animals That Hide, Imitate, and Bluff*, Lilo Hess  
*Mimicry in Plants and Animals*, Wolfgang Wickler

Photographs by Kjell B. Sandved

## MECHANISMS FOR SURVIVAL (CAMOUFLAGE, PROTECTION & DECEPTION)

There is a fierce contest in the animal world for survival. In each species, the most fit have the best chance to feed, survive and pass the adaptive genes on to their offspring. One adaptation found in nature that aids survival is camouflage (KAM-uh-flaj). The hunter can feed better if it is not seen by its prey. The prey can escape death if it is hidden or has some other form of protection. *But what advantage*

*is it for some organisms to have bright colors or strange shapes?*

The advantages of protection and deception afforded by these unexpected adaptations will become clear as you study this lesson. See if you can discover the mechanisms for survival, seen and unseen, in each slide.

## 1 BARK?

One of the common backgrounds in a forest is tree bark. It provides a very good place to hide. Think of a moth as it flies and feeds at night. It escapes many predators (PREH-di-ters) because of the dim light. But when dawn comes, the daylight makes the moth dangerously visible. Its instinct attracts it to a tree bark of a similar color and shading. The daylight stimulates the moth to remain motionless on the bark all day. Camouflaged

against the bark, it is almost invisible to its predators. *Can you find the moth in this slide? Do you think you would have found it in a forest full of bark? What two adaptations did the moth inherit to help it survive in this manner?*

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