

How insects breathe

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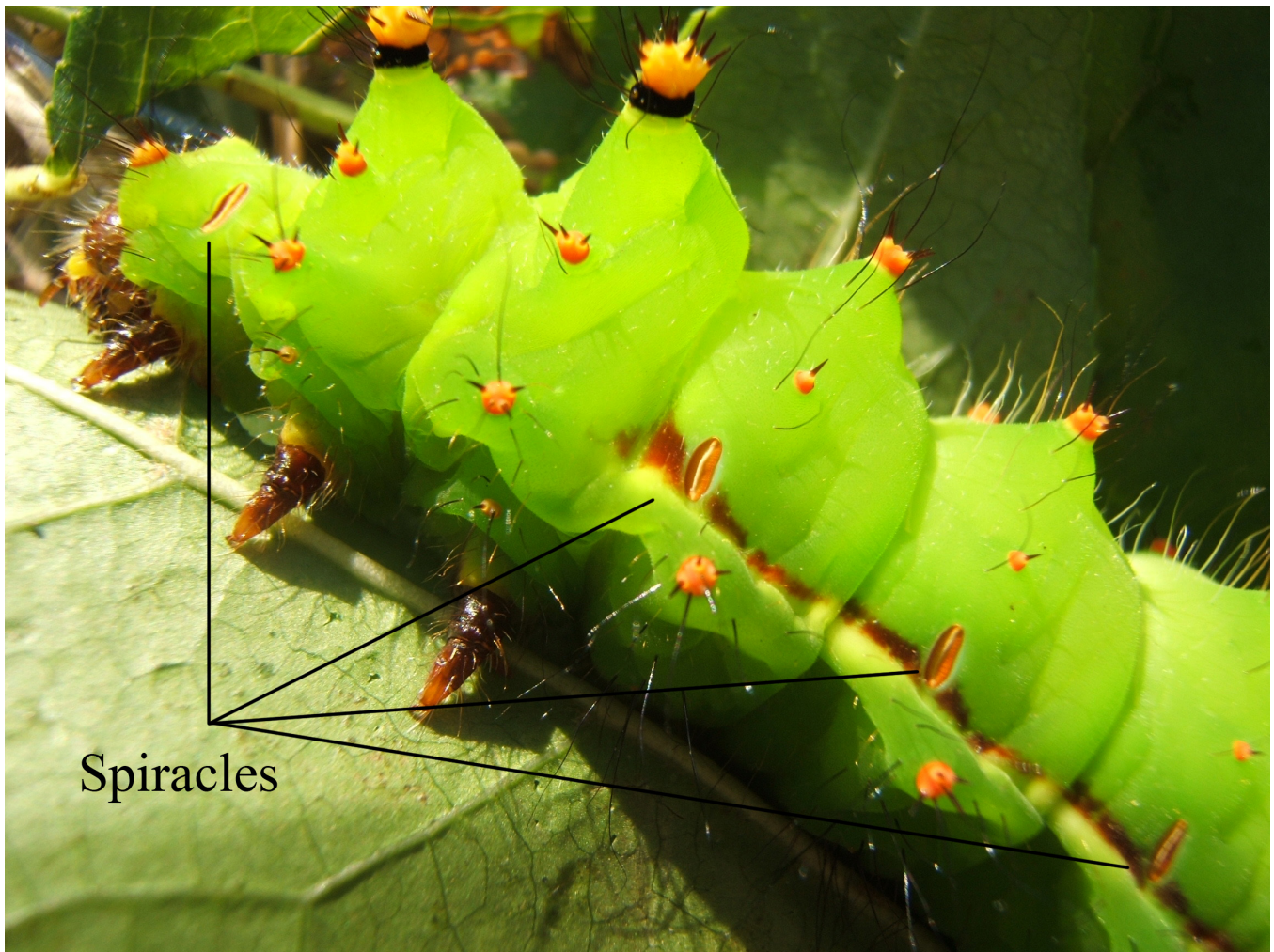
Mosquito larvae standing underwater. Photo by: James Gathany/CDC.

Oxygen is a gas in the air we breathe. People and animals need oxygen to live. Insects do, too. People, animals and insects also breathe a gas back out. This gas is called carbon dioxide.

Apart from this, bugs don't breathe like humans and animals do. Bugs don't have lungs. Lungs are like sacks in people's chests. They suck air in and blow air out.

Bugs take air in through holes on the outside of their bodies. These holes are called spiracles. The inside of an insect's body acts a bit like a sponge. A sponge gets wet because it has small holes that let water in. Spiracles are something like this. They let oxygen inside the insect's body. Then, they push out carbon dioxide.

How Do Bugs Control Breathing?



Insects have some control over their breathing. An insect can open and close its spiracles. It does this by using certain muscles. Insects can also pump muscles to force air through their bodies. This helps spread the oxygen inside them.

How Do They Breathe In Water?

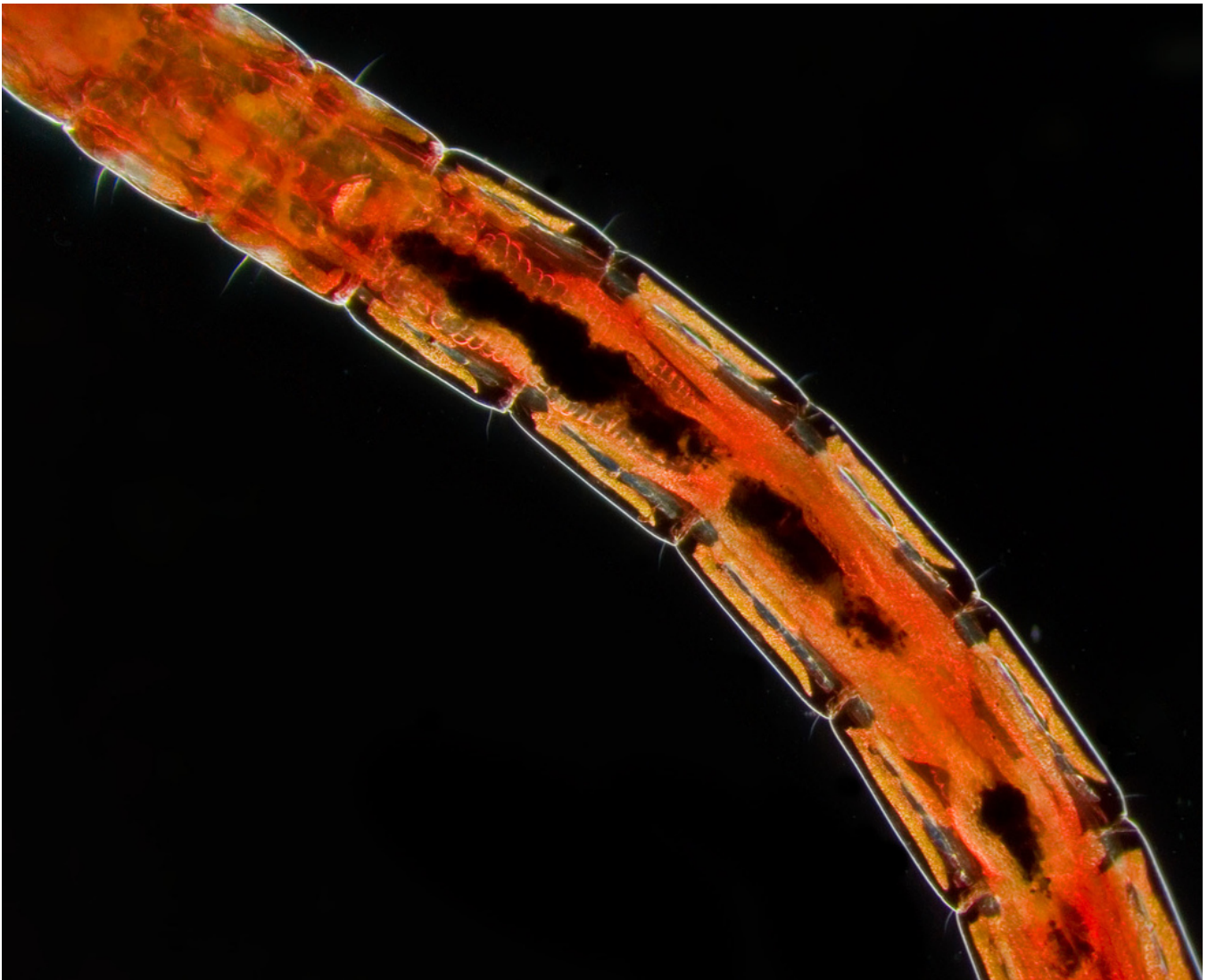
There is less oxygen in water than in the air. But many bugs are able to live in water. They have special ways of getting the oxygen they need.

Some water bugs use gills. Gills are how fish and other sea animals breathe. These gills are usually on the biggest part of the insects' bodies.

Insects also have other ways of breathing in water. Some use tubes like humans use snorkels. Rat-tailed maggots have a snorkel-like body part. This is a tube that sticks out of the water. Rat-tailed maggots use it to breathe air in.

Other insects carry a bubble of air with them underwater. This is like people who use scuba gear. Some insects are also protected by hair that keeps water away. This lets them keep air around them, which they can breathe.

Trapping Oxygen



The air is not the only place where you can find oxygen. There is some oxygen in water too. Some insects have a way of getting this oxygen.

Hemoglobin is a protein in your blood. It is good for carrying oxygen. It can also help get oxygen from water. A few types of insect have hemoglobin, just like people. One example is the bloodworm.

Bloodworms can live in water even when there isn't much oxygen. They move their bodies back and forth. This fills their hemoglobin with oxygen. The hemoglobin pushes out oxygen when they stop moving. This way, bloodworms are able to breathe.

Quiz

- 1 What does the introduction [paragraphs 1-3] show the reader?
- (A) It explains how insects are able to control their breathing.
 - (B) It compares the way people breathe with the way insects breathe.
 - (C) It shows how being underwater affects insects' breathing.
 - (D) It describes the way insects breathe when there is not much oxygen.
- 2 Which section of the article gives information about insects that can use blood to get oxygen?
- (A) Introduction [paragraphs 1-3]
 - (B) "How Do Bugs Control Breathing?"
 - (C) "How Do They Breathe In Water?"
 - (D) "Trapping Oxygen"
- 3 Read the section "How Do They Breathe In Water?"
- Which sentence from the section explains WHY insects that live in water need special ways to breathe?
- (A) There is less oxygen in water than in the air.
 - (B) But many bugs are able to live in water.
 - (C) These gills are usually on the biggest part of the insects' bodies.
 - (D) Insects also have other ways of breathing in water.
- 4 Which detail from the article shows HOW bugs control their breathing?
- (A) Bugs take air in through holes on the outside of their bodies. These holes are called spiracles.
 - (B) An insect can open and close its spiracles. It does this by using certain muscles.
 - (C) Some insects are also protected by hair that keeps water away.
 - (D) A few types of insect have hemoglobin, just like people.