
TIME FOR KIDS
BUG BUILDERS
Timothy J. Bradley

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MAKING IT WORK

Engineers are people who find new ways to make things work. They build bridges. They dig tunnels. They make roads. They also plan how to build toys, forks, cars, and more! Some of the best engineers never went to college. They were born knowing how to build things. But these engineers aren't people—they are bugs!

Imagine a creature that can grow its own **armor**. What about a bug that can make silk that is stronger than steel? Insects can make structures as amazing as our biggest **skyscrapers**. Some use materials they find in nature. Others build things using their own bodies! These are not aliens from a science-fiction movie. These animal engineers build new things on Earth every day.



A spider builds a silk case for its eggs.



A wasp builds a hive.



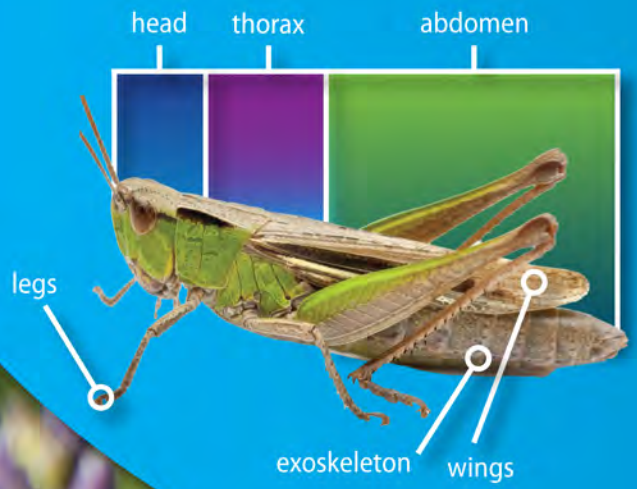
- Have you ever tried solving a problem by inventing something new?
- What needs do insects and people have in common?
- How do you think insects keep themselves safe?

BUG BUILDERS

Every animal needs to find ways to survive. All animals must search for food. All creatures must find safe places to live. Insects must avoid **predators**. But what exactly is an insect?

An insect breathes air. Its body is divided into three parts: head, thorax, and abdomen. It has three pairs of legs. And it has wings.

Insects are a type of **arthropod**. They have **exoskeletons** and jointed legs. Spiders are arthropods. Crabs and some sea creatures are, too. Around the world, these bug engineers have built small structures that help them survive in a big way.



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Did You Know?

In some cultures, fried and chocolate-covered insects, such as bees and ants, are considered a tasty treat.

a variety of insect snacks

Insects were one of the first creatures to exist on Earth. They showed up over 100,000,000 years ago!



an ancient scorpion trapped in amber

SPITTLEBUG

Spittlebug is the name given to the froghopper in the **nymph** stage of development. The spittlebug is an insect that makes bubbles that look like spit. (That's where it gets its name.) First, it makes a big glob of **froth**. Then, it sits inside it. That is where it grows into an adult. The froth hides the bug from predators. And those who attack the spittlebug will learn that the froth has a very bad taste.

Froghopper



spittlebug nymph

adult froghopper

Super Spit

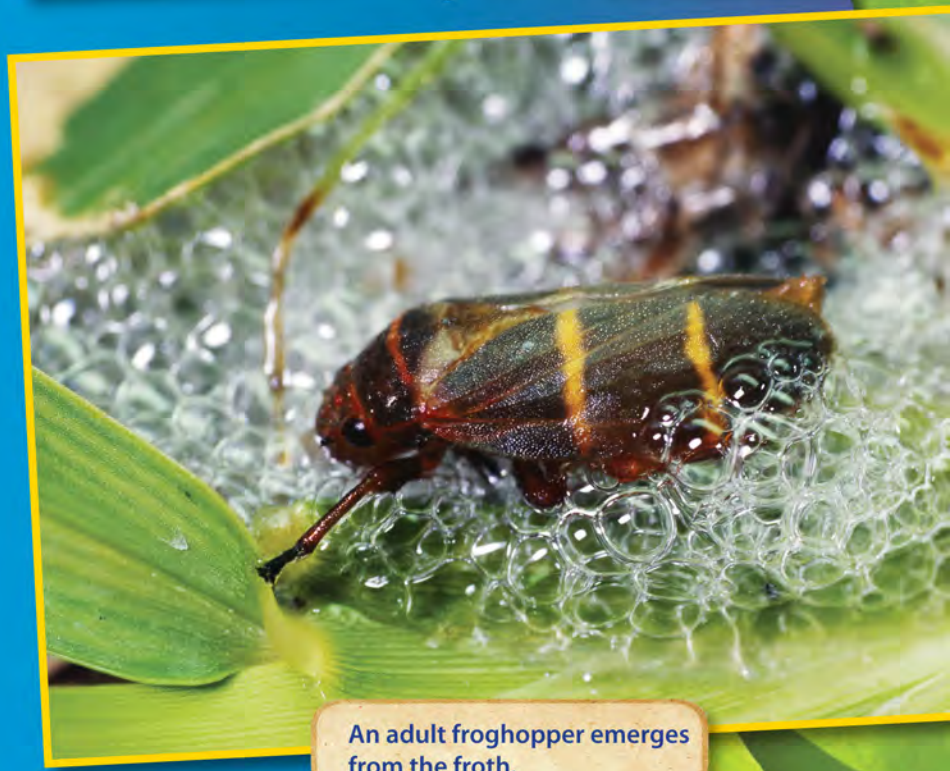
This spittlebug's froth does more than hide the nymph. It also keeps the nymph at the right temperature and prevents the insect from drying out.

Insect Names

Spittlebugs get their name from the froth in which they hide. Many other insects get nicknames based on the way they act or look, too. There are caterpillars called *woolly bears*. Termites are sometimes called *white ants*. Fierce ants in Africa are called *army ants* or *driver ants*. Stinging ants are called *fire ants*.



woolly bear caterpillar



An adult froghopper emerges from the froth.

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