

BIOCONNECT

Fostering Sustainable Innovation Inspired by Nature.



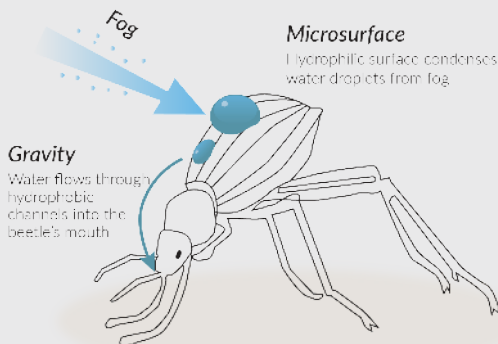
Biology:

The darkling beetle (*Stenocara gracilipes*) lives in Namibia, a country in southwest Africa. Living in the Namib desert, this beetle got the nickname Namib beetle. This is an extremely hot and dry climate, and these little beetles can survive because they harvest water droplets from the air!

In the morning and evening, fog (a cloud of moisture that is really close to the ground) rolls over this desert from the ocean. The darkling beetle uses the many tiny bumps along the surface of its body to capture water droplets from this cloud. To do this, the beetle first climbs to the top of a sand dune and raises its back in the air. The insect's back is covered in micro-grooves (many tiny bumps). The top of the groove is hydrophilic (meaning water-loving), and the valley of the groove is hydrophobic (water-repelling). The combination of hydrophilic and hydrophobic surfaces allows water droplets to condense on the beetle's back and then flow into its mouth when the beetle's back is elevated (harnessing the free energy of gravity).

What can we learn from the Nambi beetle about how to capture or absorb liquid?

Diagram:



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