

Octopus gives scientists idea for how to stay hot or cold

By Lela Nargi, The Washington Post, adapted by Newsela staff on 08.12.19

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Image 1. A common octopus on the seabed. Photo by: Albert Kok/Wikimedia Commons

Engineer Alon Gorodetsky remembers when he started studying cephalopods. This is a group of sea animals like squid, cuttlefish and octopuses. He saw an amazing video. It showed an octopus. The octopus appeared out of nowhere from a rock. The animal was using camouflage. This means it could hide well. That "made me think, I have to work on this," he said.

Special Kind Of Sheet

Mr. Gorodetsky works at the University of California at Irvine (UCI). He and his team used cephalopods to create something. It is not tied to camouflage. It is a kind of sheet. It lets people change how warm or cool they feel. The UCI team used biomimicry. That is copying how a living thing looks or acts.

All animals have cells. They are the tiny building blocks for life. Cephalopods have skin that is packed with special cells. Those cells have pigment. That is coloring found in nature. Cephalopods can hide thanks to those cells. The special cells swell up and shrink a lot. That changes their skin

color. Think about drawing dots on a piece of plastic wrap. Then stretch the plastic. That makes the dots get much bigger.

When that happens, it changes the way light bounces off a cephalopod's skin. This changes how the animal looks. UCI used this idea for something different. They put little pieces of metal tightly together. They are packed on a rubber sheet. The metal takes in and holds heat. That changes when the sheet is stretched. The copper pieces are pulled apart. This lets spaces open up. Heat then gets out between the spaces.

Could Save Money

This sheet would be useful. It can help people change how hot and cold they feel. This could save money on energy. Buildings would not have to change their heat or cooling.

The UCI team now has to put the rubber sheet into cloth. That can be used to make things. It can make shirts, sheets and tents.

"We just have to convince people to wear it and use it," Mr. Gorodetsky said.

Quiz

- 1 Which sentence from the section "Could Save Money" explains why UCI put the sheet into cloth?
- (A) This sheet would be useful.
 - (B) This could save money on energy.
 - (C) Buildings would not have to change their heat or cooling.
 - (D) It can make shirts, sheets and tents.
- 2 How do cephalopods change skin color?
- (A) They have cells that get bigger and smaller.
 - (B) They have cells that get cooler and warmer.
 - (C) They have cells made of rubber and metal.
 - (D) They have cells made of plastic and copper.
- 3 What happens when the sheet is stretched?
- (A) The light hits it and it can be seen.
 - (B) The light hits it and it can disappear.
 - (C) The spaces open and heat gets out.
 - (D) The spaces open and heat gets in.
- 4 How did Mr. Gorodetsky change because he studied cephalopods?
- (A) He got the idea to start working at UCI.
 - (B) He got the idea to start drawing pictures of cephalopods.
 - (C) He got the idea to make a sheet used for camouflage.
 - (D) He got the idea to make a sheet used for heating and cooling.