How the Genius of Nature Could Help us Live Smarter

You can explore our online examples of how new science is uncovering the secrets behind billion-year-old inventions.

Humans have been inventing since the first spear was fashioned. Nature, using tiny scales of size and vast scales of time, has been inventing on a much more complicated and successful level. Now that we are able to work at smaller scales, people are starting to understand how nature transforms sunlight into energy, or how it creates structures that require no heat and no toxins to build. If we can find inspiration in those inventions, we may be on the cusp of a non-industrial revolution.

The impacts of this could change everything. Uncovering the process that frogs use to freeze solid could change healthcare, especially for transplants. There are moths that have eyes that reflect no light, a great asset for night vision, and even more promising for solar power. Solar cells now in production reflect 30 percent of what strikes them. Using the structure found in moth eyes cuts that to zero increasing the efficiency of solar energy systems. And what about making energy out of the sun the way plants do? That, and recyclable textiles made the way spiders make silk, are also on the table.

Did you know loons have their own internal desalination plants so they can drink salt water during their winters at sea? Companies are working to replicate what loons do to make more fresh water available around the world. The list of ideas goes on, and every time a new idea is discovered it starts with someone watching nature, (is that loon drinking salt water?) and wondering. Computer companies are watching ants communicate to see how they spread news so fast, and they are watching to see how bees vote and how swarming locusts never crash into each other.

Look around you, and see a world of invention that can make our current best efforts look a little old fashioned.

See the best new ideas here

http://wildcenter.org/dig-in/mother-of-invention
What kinds of inventions may have been inspired by the various objects from nature in the images on this page? Write your responses in the bubbles next to each image.
Answer Key and resources for Mothers of Invention

Certain frogs have a type of non toxic antifreeze that scientists have considered using for freezing organs used for transplants. This would expand the time of viability for organs.

Feathers (and the birds that wear them) have inspired flight for a very long time. However, by studying the feathers of the swift, as well as its body shape, scientists have been inspired to create the Robo-swift. Its job is to watch the birds that

Disguising submarines with a surface modeled after squids and octopi could lead to high tech stealth

Gecko tape is use for under water and space stations. It is designed based on the tiny hairs that are on the bottom of the gecko foot
Pine cones have inspired the idea of creating self-cooling buildings that seal themselves up in heat and then open up to cool out when the weather is dry.

Bat echo-location has inspired inventions to help so that blind people can get around, as well as a bat-shaped spy plane.

The lotus can keep itself clean in the dirtiest of water. Scientists are learning how to create a chemically treated plastic and metal that will shed water and take contaminates with it. The development of self-cleaning paint is based on the structure of the lotus leaf.

Sharkskin is the model for various friction-reducing coatings for ships’ hulls, and also as a fabric that will reduce friction for swimmers, sharkskin-like swimwear!

For additional information visit:

brainz.org/15-coolest-cases-biomimicry

blogs.smithsonian.com

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