



STEVE ROTFELD PRODUCTIONS

## **“XPLORATION NATURE KNOWS BEST”**

SEASON III - 2018/2019

FCC FRIENDLY EPISODE WRITE-UPS

### **SECOND QUARTER**

Week of April 1, 2019 through week of June 17, 2019

#### **Week of April 1, 2019 (Episode #131)**

It's no secret that birds were the inspiration for the first airplanes but, in this episode, host Danni Washington takes a look at how exactly that connection succeeded. She'll fly planes in tight formation to try to mimic the energy-efficient flight patterns of migrating birds, look at how engineers are inventing wings that change their shape while in flight... and even jump out of a perfectly good plane to test out an innovation based on the flying squirrel!

#### **Week of April 8, 2019 (Episode #132)**

Lately, we've been turning toward nature more and more while creating our buildings, not just for the materials, but in the way they're constructed! In this episode, join host, Danni Washington, as she tours the "living building" known as the Bullitt Center. This six-story structure mimics a tree; creating its own energy, collecting its own water, and even recycling its own waste. And come along for the ride as we check out other nature-based innovations that are changing our buildings, like a paint that protects them by mimicking the water-resistant properties of the lotus leaf and a waste-movement system based on the intestines of amazing creatures such as the giant blue whale!

#### **Week of April 15, 2019 (Episode #133)**

Every species found in nature is a survivor, there's a reason they've been on the planet for as long as they have. So host Danni Washington is trying to figure out what humankind can learn from them that we can use to protect ourselves. She'll explore how fish are helping us to build better armor, how woodpeckers are assisting us to address a top safety concern in the form of concussions, and how one of the deadliest creatures found in nature is now saving lives by keeping planes in the sky during icy conditions!

#### **Week of April 22, 2019 (Episode #134)**

The ocean covers more than 70 percent of our planet's surface and humankind has only explored about 5% of it. But the diverse wildlife from the areas we have investigated serves as a major source of inspiration for modern technology! Host Danni Washington uses this episode as an opportunity to continue the investigation, heading under the sea to explore a reef that's full of life, checking out an invention based on lobster eyes, and becoming one with the fish by turning her feet into fins before riding inside a vehicle based on sharks, whales, and dolphins that will launch her in to, out of, and under the water!

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**Week of April 29, 2019 (Episode #135)**

Everything uses energy but humans are the only species destroying our planet to create it. Host Danni Washington will discover that not only do all other organisms have better means of gathering energy, but by studying their eyes, their fins, and the ways they move we can find ways to improve solar power, wind power, and even kinetic power!

**Week of May 06, 2019 (Episode #136)**

One of the first instances of bio-inspiration was Velcro influenced by the sticky burrs of the burdock plant. In this episode, host Danni Washington takes a fascinating and fun look at Velcro and other ways inventors have “stuck” with nature including robots that can scale walls or pick-up any object thanks to bugs and chameleons, suction cups inspired by one sucky fish, and an innovation based on the holy-grail of all adhesively-inclined animals... the gecko!

**Week of May 13, 2019 (Episode #137)**

Helicopters took a lot of their early inspiration from one of nature’s most efficient fliers in the dragonfly and host Danni Washington’s going to take one for a spin to see exactly how! She’ll also take a look at how this insect and the wings of owls continue to inspire helicopters and how another one of the helicopter’s early influences, the maple seed, has inspired one of the world’s coolest new unmanned aerial vehicles.

**Week of May 20, 2019 (Episode #138)**

While inventors have been looking toward nature as inspiration for centuries, this science is just starting to come into it’s own and was recently given a name... Biomimicry! Join Danni Washington as we visit all the new places where this science is taking hold, from schools, to zoos, to national conventions like the USA Science and Engineering Festival in Washington D.C.!

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**Week of May 27, 2019 (Episode #139)**

To many people the thought of sharks can be scary but they're actually a huge help to our oceans... and have inspired some awesome tech! Danni Washington will take the plunge and swim with sharks, relaying how their skin is being used to fight germs and their senses can help build better robots! And, if you're still scared of sharks, Danni goes surfing to reveal how scientists are using bio-inspiration to develop wetsuits that should make you nearly invisible to the ocean's top predators.

**Week of June 3, 2019 (Episode #140)**

Animals in nature have other ways of communicating than you or I do and many of them are able to move collectively in packs called "swarms". Host Danni Washington takes a look at how today's scientists are studying this swarm behavior to make better robots that will help in our factories, to collect things on other planets, or to make better autonomous cars!

**Week of June 10, 2019 (Episode #141)**

Some of the world's strongest materials are naturally made like the silk spiders use to make their webs which, pound for pound, is actually 5 times stronger than steel. In this episode, Danni Washington will look into how we're looking toward nature to make our other things stronger... like glass, metals, and even ourselves!

**Week of June 17, 2019 (Episode #142)**

Drones are all the rage right now... and, thanks to nature, they're doing things that we never imagined! Join Danni Washington as she explores aerial drones that can perch on walls, dive in and out of water, and communicate in swarms!