Why do scientists suit up, gown up, gear up, and even dress up in costume so many different ways? Their work can succeed or fail depending on what they wear.

From Head to Toe and in Between: *Scientists Get Dressed*!

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One of my favorite school memories is getting dressed up in white, thermal long underwear. It was not for a wintry day or Halloween, but for a science skit about astronauts walking on the moon. I remember imagining that day that I could be an astronaut! Now my newest STEM book for children lets young readers discover how real scientists—including women astronauts—get dressed to do their extraordinary work.

Major inspiration for *Scientists Get Dressed* came in the form of the diving wetsuit and SCUBA gear worn by Anne Scanlon, my author visit host at Robert Down Elementary School library in Pacific Grove, California. Anne doesn't wear her wetsuit or SCUBA equipment when she works in the school library, but she does don the wetsuit when she volunteers as a diver/educator at the nearby Monterey Bay Aquarium. Her underwater outfit got me thinking about how marine biologists get dressed for their work with all kinds of ocean animals.

Since writing *Beauty and the Beak* I had been fascinated by my coauthor/raptor biologist Janie Veltkamp's Kevlar-lined gloves and thick leather jacket, which she must wear to protect herself from the ripping talons and beaks of birds of prey. The "Eureka!" moment for *Scientists Get Dressed* came when my grand-niece showed me a picture of her mother at work, wearing waterproof waders up to her chest and standing waist deep in a partly frozen stream. "That's what Mommy does?!" I asked in astonishment. I knew her mother, Lucy Rose, was a freshwater chemist, but until I

Scientists' livelihoods—and their very lives—can depend on their spacesuit, polar parka, waders, helmet, harness, gloves, and more as they do work like repairing the International Space Station, providing medical care for injured bald eagles, tagging whale sharks, or operating on the human brain.

Scientists' Glove Challenge Activity

Before writing *Scientists Get Dressed*, I helped create the national STEM activity website <howtosmile.org>, named an AASL Best Website for Teaching & Learning. Now I've created a new, hands-on Scientists' Glove Challenge STEM Activity, which is included in the book. Any librarian, teacher, informal educator, or parent can lead this activity, or kids can try it themselves in school and other settings using inexpensive, easy-to-obtain, available, and safe materials.

What kids (and adults) can learn from this activity is that scientists can't do their work without the right clothing and tools. In the challenge learners try different tasks like connecting toy bricks or measuring while wearing different gloves. Gloves you can use include dishwashing gloves (to represent a water chemist); thin, lab-type gloves (to represent a lab scientist or surgeon); mittens or oven mitts (to represent a glaciologist); cotton work gloves (to represent a volcanologist); and winter or ski-type gloves (to represent an astronaut).

Extra Challenge (timed): Glaciologist Adrian McCallum studies how snow and ice freeze and melt to create slow-moving glaciers and roaring avalanches. He does research in the coldest, harshest places on Earth, and knows firsthand that how fast scientists get dressed is critical to their safety and survival. He suggests this activity extension: Have kids time themselves, or each other, to discover how long it takes them to button or zip their coat or jacket, depending on what gloves they're wearing.

saw that photo I had NO idea how or where she did her work.

Not all scientists wear white lab coats, like pioneering brain researcher Marian Diamond in *Scientists Get Dressed*, but most children and adults envision them that way. Students learning about scientific facts and challenges may not know anything about the scientists discovering these facts or meeting these challenges. Through the unique lens of what scientists wear, I want children to explore and understand STEM in new ways, and imagine themselves getting dressed for all kinds of exciting, important work.

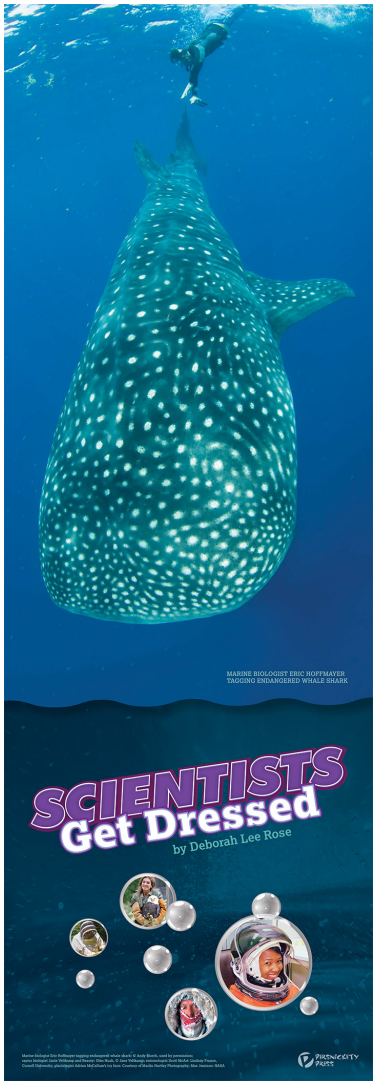
Why do scientists suit up, gown up, gear up, and even dress up in costume so many different ways? Their work can succeed or fail depending on what they wear. Even the material their clothing is made of is critical to their safety. A volcanologist must wear cotton gloves that won't melt near hot lava. A glaciologist may wear four pairs of mittens at one time to keep from getting frozen hands. Scientists in the lab need gloves that can't be penetrated by dangerous germs or chemicals.

Scientists' livelihoods—and their very lives—can depend on their spacesuit, polar parka, waders, helmet, harness, gloves, and more as they do work like repairing the International Space Station, providing medical care for injured bald eagles, tagging whale sharks, or operating on the human brain. Scientists and photographers across the United States and in Canada, England, China, and Australia eagerly contributed their "you are there" photos to *Scientists Get Dressed*, so young readers can meet real scientists and discover what they do, how they do it, and why their scientific work matters.

A spectacular photo of marine biologist Eric Hoffmayer satellite tagging a whale shark is spotlighted on the educational poster on the

book jacket's reverse side. Locating and tagging these endangered sharks is critical for collecting and transmitting data to scientists worldwide. This data quest gives scientists—and all of us—new knowledge about how these little-known giants survive in the open ocean, where they migrate and give birth, and how we can protect their species worldwide. In the photo Eric wears snorkeling, not SCUBA diving, equipment. He explains that diving fast and deep with whale sharks can be dangerous for humans. Wearing a snorkel, mask, and swim fins, he can closely and more safely observe and tag them near the ocean surface.

Like Eric, I can't physically follow my subjects everywhere, as they climb a frozen glacier, pull themselves high into the forest canopy, or repair the International Space Station, but I can explore and discover with them in my imagination. This is something I always have in common with young readers.



Deborah Lee Rose *is the award-winning author of* Scientists Get Dressed *(WunderMill Books 2019) and* Beauty and the Beak: How Science, Technology, and a 3D-Printed Beak Rescued a Bald Eagle *(WunderMill Books 2017). Coauthored with renowned raptor biologist Janie Veltkamp,* Beauty and the Beak *won the AAAS/Subaru SB&F Prize for Excellence in Science Books, the Bank Street College Cook Prize for Best STEM Picture Book, the California Reading Association Eureka! Gold Award for Nonfiction, and is a Junior Library Guild title. Deborah also wrote* Ocean Babies *(National Geographic);* Into the A, B, Sea *(Scholastic Press);* Jimmy the Joey *(National Geographic), which was named a Notable Social Studies Trade Book for Young People;* The Twelve Days of Kindergarten, *and* The Twelve Days of Winter *(Abrams Books for Young Readers); and many other cherished books for children of all ages. As a senior science writer at UC Berkeley's Lawrence Hall of Science, she helped create the AASL Best Website for Teaching & Learning–honored STEM activity website <www.howtosmile.org>. Deborah graduated from Cornell University and lives in the Washington, D.C., area. To learn more about her work, visit <www.deborahleerose.com>.*

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