Announcer: Welcome to guts! Guts... the game show! Do you have the guts? Today, our contestants will

find out if they have the guts.

Contestant 1: It's so cold in here. What am I supposed to do with this?

Announcer: Survive! (canned laughter) You have about 15 minutes until hypothermia sets in and it's starting to snow! Contestant 1: What? (canned laughter)

Announcer: You should get started on crafting something that'll be, not only efficient at keeping you warm, but most importantly, dry.

Contestant 1: This isn't what i signed up for!

Lee Francis IV: Maybe I can be of assistance. For thousands of years, Indigenous people have been meticulously

crafting waterproof outerwear that can put modern winter clothing to shame. Sustainable, efficient and most importantly, waterproof. This kind of stuff can keep you warm and dry throughout the winter. And, we're going to teach you all about it, today, here on...

Announcer (off camera): Guts!

Lee Francis IV: No, no... that, no... I don't think that's it.

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Lee Francis IV: When you live in wet and cold climates and conditions, survival becomes dependent upon how

dry you can be. Throughout the ages, ancestors and elders have passed on clothes-making traditions, including how to craft waterproof outerwear, by expanding and sewing guts - a long-time practice of the Indigenous peoples of what is now known as Alaska. How did they do this? First, they would clean and scrape the intestines of various animals. They would then blow up the intestines and let it dry outdoors. This would expand the shape and kill any remaining bacteria. Finally, they would craft the outerwear, which, in and of itself, was exceptionally difficult. As one master tradition keeper said, it would be like sewing tissue paper. It was important that the sewing was precise, otherwise

leaks could occur. In fact, after the jacket had been sealed, the stitches would be checked by tying off the cuffs and the neck and then filling the jacket with water, to see if there were any leaks. But, there's more to this story of traditional sewing and it lies in the mysteries of the semi-permeable membrane. See, Indigenous peoples had a keen understanding of anatomy. They understood that the intestine moves matter and fluid in a way that doesn't allow it to leak inside the body. Indigenous ancestors certainly understood the abilities of the organs in the body and were able to utilize the features inherent to this organ. What they knew early on is that the intestines, or guts, are a semi-permeable membrane. That means they function as a shell or barrier that only allows certain types of particles to move through, under certain conditions. In the body, this means that matter is on the inside and the rest of the fluids, blood, water, etc., are on the outside. With this understanding, they realized that most importantly, water could not pass through, because the molecules are too big. But, air could. This is key to creating waterproof clothing. It needs to be breathable, otherwise the moisture from the body will make you just as soggy underneath the clothing as without it. Indigenous people have been finding unique and amazing ways to insulate themselves from the environment for millennia. In South America, the Indigenous peoples cultivated the sap from the rubber trees for numerous purposes, including creating waterproof clothing. Today, the creation of these pieces is not only practical, but also a way of connecting Indigenous people to their elders and ancestors in deep and meaningful ways.

And not only are these garments practical and built for survival, but they have deep cultural meaning for each and every member of the community. That ties them back to their ancient traditions of waterproofing throughout the ages. And, these designs are on display each and every day... here on Indigi-Genius. (applause)

Announcer: You, you're not done yet?