Man 1: All right... it's time to take home my trophy.

(Clicks drumsticks together)

(drumming sounds)

(Traditional drum sounds)

Man 1: Dude, how do you get such a great tone out of that?

Man 2: Science bro.

Man 1: What?

Lee Francis IV: Hand on... let me take care of this! Traditional drummaking has taken place in Indigenous communities for thousands of years. The science of acoustics and cultural practice has intertwined for a very long time and we'll learn all about that today here... on Indigi-genius.

Party on Wayne!

(sighs)

Lee Francis IV: deedle, lee, dee, deedle, lee, dee...

♪ ♪

Lee Francis IV: For Indigenous people, drums are more than just a collection of natural elements. The art and science

of drummaking have been a part of Indigenous cultures throughout the world for millennia. Drums have a deep spiritual resonance, but also have a necessary understanding of physics, in order to achieve the correct sound. In creating a membranophone or instrument that has a skin or membrane stretched over a frame, Indigenous peoples have had a long time to practice.

Everything about the drum itself has to do with acoustics, or the way sound waves travel. In the case of a drum, striking the head of a drum changes the shape and squishes all that air inside. That air then pushes down on the bottom of the drum head and changes its shape. These compressions are reflected back against the drum shell over and over which creates the vibrations. These vibrations vibrate the air, becoming sound waves, which eventually reaches our ears. In making a traditional drum, the first step was to select and create the shell. Mostly, it would be a solid piece of wood of various size, which would be covered by hide or skin and stitched or woven into place. The hide would be wet to create elasticity and as it dried up, it would tighten up to give the drum its permanent shape and sound. This took incredible understanding and calculation. Master drummakers can intuitively sense the tone they want to achieve simply by calculating the size and shape of the shell. The larger the volume of the shell, the lower the sound of the drum. In other words, the larger the diameter, or the deeper the shell, the thicker and heavier the tone. The smaller or shallower the shell, the brighter, lighter the tone. The reason why this is so incredible for Indigenous drummaking, is that once the hide was stretched, there was no way to retune the drum without re-wetting and starting all over again. So, the drummaker needed to get it right on the very first try, every time. But, more than just the acoustics, the drum was, and is considered, a spiritual connection. Many Indigenous peoples understand that the resonance of the drum beat reflects the beat of the heart and the connection to mother earth. Drummakers are held in high regard in their communities, for their skill and ability to create these powerful instruments. Whether they are the enormous Powwow style drums, or simply small and elegant hand drums, drummaking has a long and storied history among Native peoples.

When I was a young man, I learned Powwow songs next to some of the best drummers I've ever known. Whenever I left practice, I was left with this deep feeling of contentment and understanding. This weaving of science and spirit continues to be a hallmark of Indigenous innovation, which is on display each and every day... here on a Indigi-Genius…. Two, three, four...

(music plays)