Getting a Different View of the Trail

by Sabrina Carlson

On March 1st, 2017, 100 students from Mount Elden Middle School loaded busses early in the morning to drive to the Picketpost Trailhead near the town of Superior.

Upon arrival, and after some lunch had been eaten, part of the group headed off to the Boyce Thompson Arboretum for a tour while part of the group stayed at the trailhead.

Investigating Chia Goo

For those staying at the trailhead, we took a moment to take in the breathtaking scenery and the unusual green of the desert in early spring. We compared and contrasted this part of the trail with the trail they are familiar with back in Flagstaff. After observing for a while, we began to discuss the idea of the desert as a harsh environment. Is it? For whom? For us, certainly! But for the plants and animals who live here? The saguaro and the kangaroo rat might find the rainforest quite harsh, but here they are right at home thanks to adaptations that allow them to conserve water.

Learning about desert plants.

One of the many adaptations that allows desert plants to thrive is a very high concentration of soluble fiber. This particular fiber, known as mucilaginous fiber, will absorb great quantities of water and hold it in a jelly-like matrix until the plant needs to use it. We observed the effects of water on chia seeds as a great example of this phenomenon. Chia seeds, when exposed to water, will create a thick gelatinous goo that is fun to play with and is edible. The chia seed is native to the Sonoran and Chihuahuan Deserts of North America and was virtually unknown to most modern Americans until the 2009 book *Born To Run* popularized it as a Native American superfood. Now it can be found in most grocery stores in bulk, in smoothies, puddings, pouches and even kombucha. Chia is not popular for nothing! Not only are they packed with nutrients, the same fiber that helps them absorb water and create a jelly is excellent for

human health when consumed. It is beneficial for the gut and helps control blood sugar.

Chia isn't the only desert plant with high nutrient content and lots of soluble fiber either! It turns out that most traditional foods of the desert like mesquite, nopales, cactus fruits, and palo verde pods are nutrient and fiber packed! This led us to a discussion on human adaptations. If plants and animals adapt to their surroundings, do humans too? Yes! We thought about how a cactus might do in the Amazon and compared that to how we might expect a human to do when changing its environment considerably. For example, traditional cultures around the world are known to eat about 100-150 grams of fiber daily, while the average American eats only 15. Wow! That's a big change of environment!

We then split up to take turns mixing up a delicious chia seed pudding that everyone could eat the next day, and doing a desert edibles scavenger hunt! Students tried to identify mesquite, palo verde, and several types of cactus that traditional Sonoran Desert cultures eat.

Finally, after exploring the plants, learning about adaptations, and even mixing up a cooking project in the field we set out for a short hike to enjoy the beauty of the Arizona Trail up close.

It was a fun and informative day for us all, and I'm told everyone really enjoyed the chia pudding the next morning!

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