Florida Microplastic
AWARENESS PROJECT

Suggestions for Teaching K-12 Youth about Microplastics

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Grade level			Resource/Activity
Elem	Middle	High	
X	X	X	There's a fabulous TedEd video (5 minutes) that does a great job of summarizing the issue and "setting the scene." I'd suggest showing this as an introduction to the topic of microplastics. It's at https://www.youtube.com/watch?v=KpVpJsDjWj8
X	X	X	Beanie Babies are stuffed with plastic "nurdles"--the form in which pre-consumer plastic is shipped to manufacturers. This term is introduced in the TedEd video mentioned above. Carefully cut through some of the stitches on one of the seams, and you'll discover a surprising number of these tiny beads (see photo-- there were 371 nurdles in that tiny Beanie Baby). The hang tag will say whether the beads are polyethylene (PE) or PVC. 
X (with help/ over-sight)	X	X	If you have an opportunity to work with the students on a shoreline, you can have them look for microplastics in sand/sediment. I'm attaching (below) a protocol that I wrote and used with 12-14 yr-old students one summer. If it's not feasible to bring sediment to a classroom and use water to float out the plastics, you can simply have them visually pick out all of the plastics they can see from within a quadrat. I've done this with high school students (and with elementary students who were paired with high school students) and used quadrats that

			were 0.25 m x 0.25 m, then had them mark an X in the sediment when they had removed all of the plastic they could see, and repeat that 16 times. That way they had sampled an entire square meter, and had made sure they didn't sample an area that had already been sampled before. They collected their plastics in film canisters, and I later went through their collections and counted the number of nurdles, as well as sifted the samples to obtain just the microplastics. I gave the teachers small vials containing the microplastics their students had found.
X	X	X	The Marine Debris Tracker App from NOAA provides lots of cool opportunities for logging data, then generating maps/viewing data etc. If you haven't checked it out, I suggest you play with it (both the app and the website). http://www.marinedebris.engr.uga.edu/
		X	Sampling water samples for microplastics is somewhat more complicated, and requires more expensive equipment--there is a volunteer manual, as well as a series of YouTube instructional videos showing the Florida Microplastic Awareness Project protocols on the FMAP website. (www.plasticaware.org) I am happy to send a supplies list if you decide you want to pursue that route--it costs about $600 for one set of equipment, and you'd probably want to have supplies for students to be able to work in groups of 2 or 3, so add about $250 per group to that...
X	X	X	There are some additional resources under the K-12 tab on the plasticaware.org website.