



CALIFORNIA SCIENCE & ENGINEERING FAIR 2018 PROJECT SUMMARY

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Project Title Getting Microplastic Beads Out of Our Oceans	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals We are designing a submersible R.O.V that collects microplastic beads in the ocean. These are particles of plastic that are mostly found in hygienic products that are harmful to fish, birds, marine mammals and humans. Approximately 17.2 million microplastics beads are released into our oceans everyday. We designed a gate out of lego robotic parts and a filter as well, as for concentrating on the tiny microplastic beads. Overall, our R.O.V successfully worked using the gate, filter, and spandex cloth net.</p> <p>Methods/Materials We constructed the 3D "T-shaped" frame of the R.O.V out of PVC pipe. Then, we designed our net out of spandex cloth and wooden skewers. We have a layer of tulle in front of the net for extra filtration. We also constructed a movable gate and a filter out of Lego robotic parts. We added the steel washers and pool noodles for buoyancy. We then modified our original model to the one we have now, moving the filter into the net behind the tulle.</p> <p>Results After several test, we found the spandex material, out of the 4 materials we tested, works best for the net. The spandex allowed water to flow through and also trapped the microplastic beads.</p> <p>Conclusions/Discussion Overall, the submersible R.O.V we constructed to help collect oceanic pollution, which was focusing on the tiny little particles which are dangerous microplastic beads, successfully collected microplastic beads. We used the spandex cloth for the net. We placed the filter inside of the net with tulle in front of that. We also built a filtration system and a movable gate using the Lego robotics kit. This design of the net successfully collected microplastic beads filtering out the bigger trash. The R.O.V worked phenomenally at collecting microplastic beads.</p>	
Summary Statement We are constructing a submersible R.O.V to collect oceanic pollution, focusing on microplastic beads, that are harmful to fish, birds and other marine mammals.	
Help Received Mira Loma MS STEAM Academy teacher Marry Ward supplied us with most of our recycled materials.	