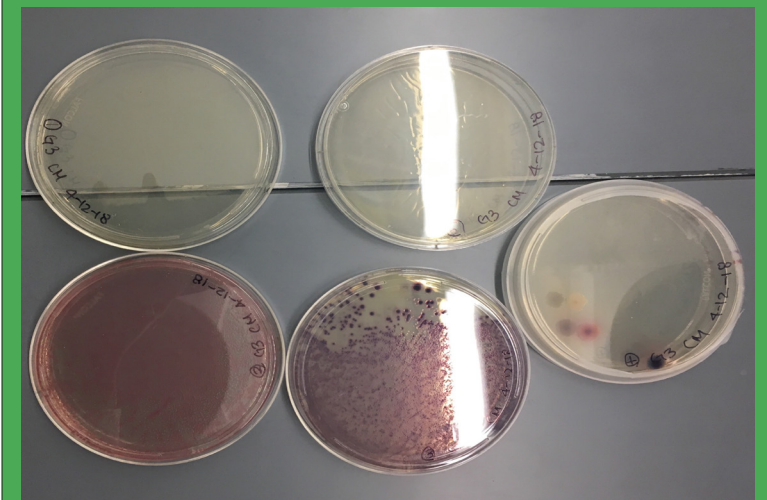


Field Action Project.6

(A) The whole point of an experiment is to interrogate nature in a specific kind of way. While we can passively observe an event and gain valuable information we can also create an experiment that constrains the conditions in a particular way in order for us to draw more conclusive conclusions about the situation of interest. By using experiments we aren't doing anything fundamentally different, we are still observing what nature has to tell us about the world we inhabit, but we are trying to set up conditions that are meant to clarify what nature is saying. In this view experiments are nature's interpreter.

Experiments also allow us to get access to things that we might not normally be able to see. For example in terms of the experiment that was conducted in the lab where we tested the water from a river we were able to visibly see and recognise the harmful bacteria that were present in the water. This in large scale makes students like our class more aware of the harmful viruses that are present and are invisible to the naked eye.



The above image illustrates the different plates that tested the same water but brought out representation of the various bacteria that were found.

(B) The science lab provided as an unique opportunity to conduct our on experiments. Hence, I tested the water in our dorm which has weird taste to it and was whiteish in colour. Through this process I was able to conclude that the water did not have any specific bacteria as tested previously in the group project. Through more research it was then identified that the problem was with the design of the tap. Hence, through this we understand how we would use the Lab to conduct experiments to identify different issues within our environment.

Field Action Project. 7

For this topic I decided to focus on birds.

(A) here are two reasons birds might fly in a V formation: It may make flight easier, or they're simply following the leader. Squadrons of planes can save fuel by flying in a V formation, and many scientists suspect that migrating birds do the same. Models that treated flapping birds like fixed-wing airplanes estimate that they save energy by drafting off each other, but currents created by airplanes are far more stable than the oscillating eddies coming off of a bird. Just as aerodynamic estimates would predict, the birds positioned themselves to fly just behind and to the side of the bird in front, timing their wing beats to catch the uplifting eddies. When a bird flew directly behind another, the timing of the flapping reversed so that it could minimize the effects of the downdraft coming off the back of the bird's body. The findings likely apply to other long-winged birds, such as pelicans, storks, and geese, Usherwood says. Smaller birds create more complex wakes that would make drafting too difficult. The researchers did not attempt to calculate the bird's energy savings because the necessary physiological measure-

ments would be too invasive for an endangered species. Previous studies estimate that birds can use 20% to 30% less energy while flying in a V.

(B) In relation to the design structure I created that is, a hurricane shelter that later deploys and floats like a boat. Once the structures join together and attach as a colony they would move in a similar v shape like pattern. However, here it would serve a different purpose, one that is similar to a boat or ship.

Most boats and ships have a hull design. This design helps in breaking the water and moving faster. Similarly, I wanted to adapt the same concept in such a way that structure come together and create a V like formation that would not only help move faster and break the water but to also help in navigating the way.