We would like to thank our Mentor Magaly Rincon-Zachary for helping us through this experiment with the fern growths.

Hermaphrodites Reproducing Asexually

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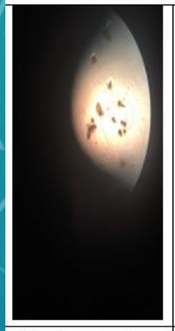
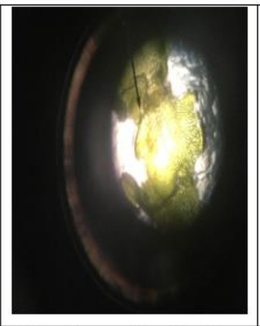
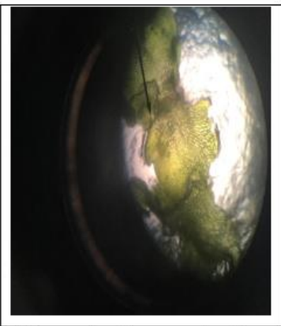
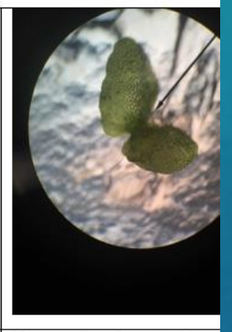
3B Honors Biology

Research Question: How can we get the hermaphrodite to asexually reproduce?

Prediction: We believe that the hermaphrodites will asexually reproduce because there are no males to fertilize the hermaphrodites.

Explore/Abstract: C-ferns are specially bred plant, originating from a tropical fern. This fern only has one cell and grows into a complicated plants complete with roots and leaves to help them survive. These plants take three weeks to develop so they grow quickly. The plants start out as microscopic plants, very tiny. After they start growing, they grow into male and female. When the first female spore germinates, she releases a hormone to turn the spores around her male, in order to get genetic variation, or differences in the offspring. The hermaphrodites are also able to reproduce without a partner. This is called asexual reproduction. Once we could identify the hermaphrodites, we used a microscope to pluck them out and distribute them into three other dishes. We leave the males in the first dish with other hermaphrodites to represent our control. In the other dishes, the hermaphrodites are spread out from each other.

Day1 4/11/18	Day 2 4/13/18	Day 3 4/19/18	Day 4 4/23/18	Day 5 4/25/18
				
*No Germination * Rhyzoids Present *Clumping (clustered spores) *Gametophytes predicted on 4/1318	*No significant changes. *Higher abundance of Rhyzoids.	*Most Hermaphrodites in control. *2 Damaged in Dish 2 *Nice mitten-shapes today *rest are healthy *UPDATE: Damaged one was a male, we immediately removed it. *Plucked out Hermaphrodites and placed them through different dishes.	*Hermaphrodites growing in "stubs" *Large and sticking together out of gel *New/ possible sporophyte *Heart shapes in control.	Hermaphrodites healthy. *New Sporophytes. *Growing significantly.

What would you do differently next time?

We feel that next we can be more careful with transferring the Hermaphrodites to the isolated dish, so that way the Rhizoids are not damaged significantly. Another thing is that we should hydrate them more so they do not become dehydrated and shrivel up and die. One last thing we would do differently is make sure a third party (authorized adult) will be able to check on the hermaphrodites before we transport them to the other dish.

Claim: Isolating the hermaphrodites will cause them to asexually reproduce.

Evidence: We saw sperm as of 4/26/18 even though our hermaphrodites were isolated, therefore our hypothesis was supported.

Conclusion: Our hermaphrodites have successfully asexually reproduced as of 4/26/18. The first hermaphrodite that asexually reproduced was in dish three and the others had asexually reproduced by the next day.