

B.B.Paper, a reusable alternative to standard paper, is inexpensive and simple to make.

Introduction and Background I began this project by identifying an issue; which were Himalayan blackberries and their destructive, killing, and quickly spreading qualities. Then I started looking for information that pertains to my topic and started asking questions, such as "Why aren't blackberries processed into paper products?" Starting with small questions, I began the process of designing my innovation. Himalayan blackberries pose a significant threat to native ecosystems and agricultural lands due to their invasive nature. These plants exhibit rapid growth and vigorous reproduction outcompete native vegetation and disrupt established ecological balances. Their dense thickets can overtake natural habitats, shading out native plants and reducing biodiversity. This not only deprives local wildlife of essential food and shelter but also leads to the displacement of native species. Additionally, the aggressive nature of Himalayan blackberries exacerbates issues related to soil erosion, as their roots often fail to provide sufficient soil stabilization, contributing to increased erosion rates in affected areas. B.B.Paper is a paper alternative to help reduce the invasive impact of the Himalayan blackberries as well as take down the 26% of municipal landfill that solid paper waste occupies by also having a hybrid version of this paper that incorporates that percentage to recycle that waste while also using the blackberry vines. While also letting the trees stay alive Himalayan blackberries also grow 5-8cm a day up to 20cm in diameter after germination and take less than 2 years until harvest while trees take at least 20-30 years until they need to be cut down. Cutting down trees and processing their pulp is way more power intensive than the blackberries because they are much thinner and don't take as much energy to crush and process.

Procedure materials: (Blackberry vines, roots, stalks), Baking soda to make stalks soft, hydrogen peroxide, okra (the slimy water), Blender, Nylon mesh fabric, empty wooden frame, and a Stapler. **1** Collect blackberry stalks, roots, or vines. **2** Cut them up into less than an inch size pieces. **3** Put those pieces in a pot with baking soda to make them soft and boil for 3-5 hours. **4** Smash the pieces that were boiled and put the smashed pieces back to boil for another 3 hours. **5** Pour enough hydrogen peroxide to cover the blackberry vines acting as a bleaching agent. **6** Staple a nylon mesh fabric on an empty wooden frame to make a sieve. **7** Boil okra for about 10 minutes or whenever you feel it has the viscosity of snot. **8** Strain the slimy liquid from the plant and mix it with the same ratio water and then pour in your blackberry pulp. **9** Sift through the liquid to form a thin layer to dry into paper. **10** Before completely dry, press the pulp down for 1 hour to make it thin like paper (to make it even flatter you iron it).

Results and Observations: 1st Attempts: Initially, I blended the pulp and left it in a 3mm-thick clump, but it was fragile. **2nd Attempts:** I added glue for stability and improved it, but it was still rough to write on. **3rd Attempts:** Without I blended recycled paper with the pulp in water, sieved it for a thinner layer, and obtained smoother paper by pressing it during drying. **4th attempts:** I boiled okra strained it to get its slimy water, mixed it with the blackberry pulp and created the non-recycled version of B.B.Paper.

In conclusion I made paper making significantly easier to harvest, faster, more efficient and less power intensive process with little to no carbon footprint making this everyday essential. By reducing numerous types of pollution, making it more cost effective and making the paper process more energy sufficient, B.B.Paper will make the will set the future of papermaking in a better light.

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