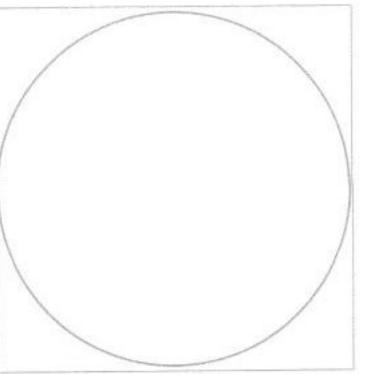
	OFFICIAL ABSTRACT and CERTIFICATION	
the	aluating the Viability of Bioprinting Skin Organotypic Through a Comparison of Contraction of Collagen Hydrogels Prepared Using Extrusion-Based Printing de Traditional Skin Grafting Methods	Category Pick one only — mark an "X" in box at right
New	haba Gulzar and Teresa Thaomi Duong Hyde Park Memorial High School, New Hyde Park, NY, United States of America; St Anthony's High School, Melville, NY, United States of America oprinting techniques currently have the ability to eliminate the need for donors and allow for ster integration with host tissue. However, the shear force applied during printing presents the	Animal Sciences Behavioral & Social Sciences
of who colors and sold lay to over colors.	iter integration with most issue. However, the shear force applied united to damage cells. During our experiment, we aimed to evaluate the cell survivability rates fibroblasts. One of the most essential components of artificial skin constructs is the fibroblasts, ich synthesize collagen and the extracellular matrix. In order to test the viability of this imponent once passed through the bioprinter nozzle, the collagen contraction was observed. It is collagen gels were first prepared to have a concentration of 1.2 mg/mL and 7.5 x 104 is well for three poured and three printed samples. The associated volumes of materials is cluding collagen and I.glutamine were combined along with cells to create a collagen gel lution. Three samples, each with a layer of collagen gel solution without cells and a separate were with cells were printed at a pressure of 10 kPa. Three samples were also poured as a control observe the effect of shear force on cell survivability. These gel inserts were then placed in the subator at 37 °C to set. The contraction rate of the collagen gel was measured and compared are a period of 11 days using EVOS Imaging and Image J software. The results of the collagen intraction experiment showed that the contraction rates were very similar. Future research would clude testing multiple trials and varying pressures to test the accuracy of these results.	Biochemistry Biomedical & Health Sciences Biomedical Engineering Cellular & Molecular Biology Chemistry Computational Biology & Bioinformatics Earth & Environmental Sciences Embedded Systems Energy: Sustainable Materials and Design Engineering Mechanics Environmental Engineering Materials Science
1.	As a part of this research project, the student directly handled, manipulated, or interacted with (check ALL that apply):	Mathematics Microbiology Physics & Astronomy
	☐ human participants ☐ potentially hazardous biological agents	Plant Sciences
	□ vertebrate animals □ microorganisms □ rDNA ■ tissue	Robotics & Intelligent Machines
2.	I/we worked or used equipment in a regulated research institution Yes No or industrial setting:	Systems Software Translational Medical
3.	This project is a continuation of previous research.	Sciences
4.	My display board includes non-published photographs/visual ■ Yes □ No depictions of humans (other than myself):	
5.	This abstract describes only procedures performed by me/us, ■ Yes □ No reflects my/our own independent research, and represents one year's work only	

This stamp or embossed seal attests that this project is in compliance with all federal and state laws and regulations and that all appropriate reviews and approvals have been obtained including the final clearance by the Scientific Review Committee.

above statements are correct and properly reflect my/our own work.

6. I/we hereby certify that the abstract and responses to the



□ No

Yes