



Curriculum Units by Fellows of the Yale-New Haven Teachers Institute
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Solutions Based on Biomimicry for Personalized Health

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The Solutions based on Biomimicry for Personalized Health unit will allow high school students in the Biology or Health field to develop the skills needed to assess and design solutions to worldwide healthcare issues. The next generation science standards (NGSS) are used as a basis for the development of this unit and will be woven throughout the unit to allow practice and implementation of the standards. The question formulation technique engages the students with both local and world-wide problems in healthcare. Once the problems have been defined, students will begin to design possible solutions. Biomimicry, biotechnology and engineering will be applied to the possible solutions. This will allow for students to develop various routes in personalized medicine to a viable healthcare solution. The feedback and refinement process gives students the chance to test the sustainability of their design against economic, technological and other constraints. Students will create a computer simulation and prototype to develop the healthcare solution. Once the redesign process has been completed the students will research how to pitch their new engineering healthcare solution. The format will be similar to 'Shark Tank' and validators will have the opportunity to question the students on their innovation as well as decide whether they are interested in investing. Overall, the unit is a comprehensive personalized health unit that includes all science and engineering practices and the engineering performance expectations.

(Developed for Health Science, grade 10; recommended for Biology, grade 10, and Biotechnology, grade 11)

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