



Curriculum Units by Fellows of the National Initiative
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Human-Centered Design of Biotechnology: Where Will We Be without Bees?

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The curriculum unit entitled, *Human-Centered Design of Biotechnology: Where Will We Be without Bees?* examines the plight of the most prolific pollinator in the world. Bees are a keystone species. The extinction of bees will have a profound impact on ecosystems around the world. Bees are responsible for one third of the world's supply of food. Imagine a world devoid of fruits and vegetables and the nutrients they contain. Bees face a host of problems, but most recently Colony Collapse Disorder is ravaging honey bee colonies. The cause is unknown but human impact is a contributing factor. Insecticides, pesticides, transportation and habitat loss are some of the ways humans have made life more difficult for the bees.

Students will use Design Thinking and computer technologies, such as Scratch, Makey Makey invention kits, and Hummingbird robotics kits to create and model ecosystems and try to develop innovations to help the bees survive. The activities can be completed with basic arts and craft supplies if these technologies are not available. The unit can be adapted for grades 3-8 and focuses on science content.

(Developed for Science, grade 4; recommended for Science and Technology, grades 5-8)

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