Backyard Evolutionary Biology: Investigating Local Flowers Brings Learning to Life

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Abstract

As college courses transition to online instruction in response to COVID-19 incorporating inquiry-based learning is all the more essential for student engagement. However, implementation can prove challenging for instructors. I describe a strategy for inquiry-based learning that is straightforward to apply in a variety of course modalities, including asynchronous and synchronous online courses. I describe an assignment where students explore the developmental basis of morphological evolution. Flowers offer an excellent example to address this concept and are easy for students to access and describe. Students were asked to conduct research on local flowering plants by collecting and dissecting flower specimens to determine their whorl patterns and then generate hypotheses to explain the developmental genetic basis of the patterns identified. This task allowed students to apply their scientific thinking skills, explore nature, and connect their understanding of the developmental basis of evolutionary change to everyday life. I designed this assignment to be completed asynchronously, and it can be easily modified for synchronous online and traditional face-to-face meetings. Incorporating inquiry using readily available, tangible, tractable real-world examples is a pragmatic and effective approach during and beyond COVID-19.

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