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Curriculum Units by Fellows of the National Initiative
2018 Volume V: Manipulating Biology: Costs, Benefits and Controversies

From Wolf to Woof! Artificial Selection via Selective Breeding

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by Jason Ward

Domestication is at the heart of how humans arrived where we are today. It is a vast concept with implications that have rattled and elevated the trajectory of human society; and yet as we marvel at the brilliance of human achievement we must not be blinded by the costs of such advancement. Animal domestication is the process by which a wild animal adapts to living with humans through selective breeding over hundreds or thousands of years. Out of all the plants and animals that have been domesticated by humans, the dog outdates them all. This unit provides an overview of natural and artificial selection (with human intervention), and then returns to focus on dogs and how selective breeding has been utilized to develop breeds with certain physical and behavioral traits. Selective breeding has brought us dogs that provide service as well as companionship. Unfortunately, inadvertent negative consequences have also plagued some breeds, including skeletal and respiratory problems that may lead to a shortened and poor quality of life for the animal. You and your students will apply your knowledge of how humans have used natural selection to domesticate dogs through carefully selected activities, games, and simulations imbedded within this unit.

This unit is designed for third grade (although it could easily be adapted for older students) and is directly connected to the Next Generation Science Standards.

(Developed for General Science STEM Lab, grade 3; recommended for Life Science and Biology, grades 3-8)

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