

Use of Learning Objects as Lab Simulations in Biology

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Learning objects have been described as being like Lego™ blocks which can be used independently as stand-alone learning experiences or linked to other learning objects for customized teaching and learning tools. Several free learning object labs were presented which were designed to (1) study natural selection using a virtual Galapagos Island recreated in Second Life where students enter as avatar field scientists; Second Life Galapagos Island: <http://slurl.com/secondlife/EVE%20Galapagos/86/213/29> (2) play a digital game designed so that students can experience natural selection by playing the role of a bird in competition with other birds for an increasingly limited seed supply; BeTheBird: <http://www.nextgenedia.com/bethebird/intro.html> (3) capture a student's reaction time in a simulated car driving experience when having to stop when a deer jumps out in front of the car under several conditions such as driving normally or when texting or using a cell phone <http://www.nextgenedia.com/responseTime.html> and (4) explore energy flow through an ecosystem using a Stella-generated simulation of a classic Silver Springs model in which energy from the sun captured by plants, passes into herbivores which are then eaten by carnivores, with all energy eventually flowing through the decomposers following death. In the last model, the ecosystem can be followed over several years and at different levels of light intensity reaching the earth to simulate what might happen to the ecosystem after an asteroid impact: <http://forio.com/simulate/makolitsky/silverspringsenergyflow-1/simulation/>

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