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| **Session 15:**  | **EVOLUTION SIMULATORS** |

##

**Skills developed**

* Use of simulations
* Plotting graphs.

## Assessed criteria

Criteria E: AIE

**Research Question**

“How can we model evolution using on-line simulators?”

**Objective**: To observe the process of natural selection by simulating a predator prey relationships and how different shape bodies may be better suited to there environment.

**Method**

1. Go to the following section of the sciencesfp website: <https://www.sciencesfp.com/evolution-simulators.html>
2. Familiarise yourself with the three simulators (2, 3 and 4 because 1 is not working at the moment).
3. For each simulator, complete the following sections which represent the five sections of Darwin´s theory as outlined in your notes, and then complete the tasks for Sim 3 below.

**Results**

Simulator 1:

**Currently not available**

Simulator 2:

1. Are the organisms able to reproduce? How many offspring per generation? Is this more than the original number of parents?
2. Is there competition between the offspring?
3. Are all the organisms the same as each other?
4. Do some of the naturally occurring variations help some organisms survive better than others?
5. What is the consequence of this?

Simulator 3:

Press brown fur and add friends.

1. Hypothesize which bunnies would better survive in the arctic environment. Why?
2. Choose the arctic environment. What happened? Why?
3. Add wolves. What happened now? Why?
4. Reset. Press Arctic. Give the bunny white fur. Add friends. Give food. What happened? Why?
5. Reset. Press Arctic. Click long teeth. Which one is depicted on the chart as a larger population (long or short teeth)? Why do you think this happened?
6. Click on long tails. Which one is depicted on the chart as a larger population (long or short tail)? Why do you think this happened?
7. Repeat this experiment (steps 1-6) with the equator environment. Which parameters allow for a better survival rate? Why?

Simulator 4:

1. Are the organisms able to reproduce? How many offspring per generation? Is this more than the original number of parents?
2. Is there competition between the offspring?
3. Are all the organisms the same as each other?
4. Do some of the naturally occurring variations help some organisms survive better than others?
5. What is the consequence of this?