Natural Selection

Spoken Tutorial Project
http://spoken-tutorial.org
National Mission on Education through ICT
http://sakshat.ac.in

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Learning Objectives

We will demonstrate,

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- **Natural Selection PhET simulation**

System Requirement

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- **Ubuntu Linux OS v 16.04**

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- **Java v 1.8.0**

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- **Ubuntu Linux OS v 16.04**
- **Java v 1.8.0**
- **Firefox Web Browser v 60.0.2**

Pre-requisites

- **Learners should be familiar with biology and ecology**

Learning Goals

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We will look at a population of rabbits for effects:

- **Of mutations and selection factors**

Learning Goals

We will look at a population of rabbits for effects:

- **Of mutations and selection factors**
- **Of environment**

We will look at a population of rabbits for effects:

- **Of mutations and selection factors**
- **Of environment**
- **On pedigree**

Mutations

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- **Mutations**

- **Mutations**
- **Changes in phenotype may be visible**

Mutations

- **Mutations**
- **Changes in phenotype may be visible**
- **Dominant**

Mutations

- **Mutations**
- **Changes in phenotype may be visible**
- **Dominant**
- **Recessive**

Link for PhET Simulation

http://phet.colorado.edu
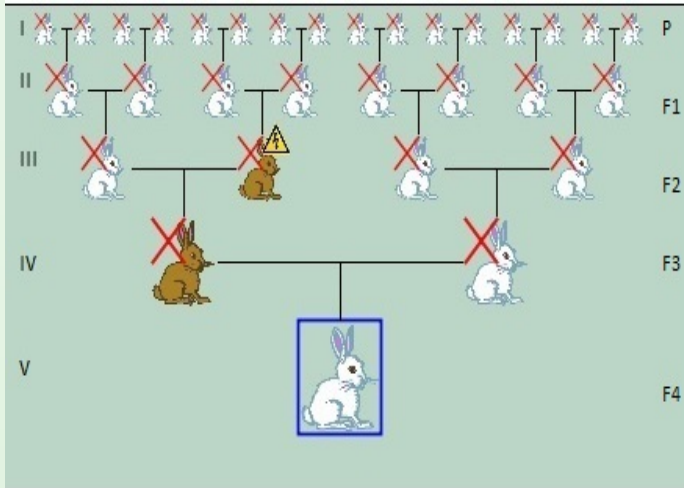
Generations of Progeny

Fur Mutation

- **Set up conditions to study effects of a fur mutation on survival**

Fur Mutation

- **Set up conditions to study effects of a fur mutation on survival**
- **Brown fur dominant, white fur recessive**

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- **Selection factor = Wolves**

Fur Mutation

- **Set up conditions to study effects of a fur mutation on survival**
- **Brown fur dominant, white fur recessive**
- **Selection factor = Wolves**
- **Three generations after mutation**

Tail Mutation

- **Set up conditions to study effects of a tail mutation on survival**

Tail Mutation

- **Set up conditions to study effects of a tail mutation on survival**
- **Long tail dominant, short tail recessive**

Tail Mutation

- **Set up conditions to study effects of a tail mutation on survival**
- **Long tail dominant, short tail recessive**
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Tail Mutation

- **Set up conditions to study effects of a tail mutation on survival**
- **Long tail dominant, short tail recessive**
- **Selection factor = Wolves**
- **Three generations after mutation**

Summary

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We have demonstrated,

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We have demonstrated,

- **Natural Selection PhET simulation**

Summary

We looked at a population of rabbits for effects:

- Of mutations and selection factors
- Of environment
- On pedigree

Assignment

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Observe the rabbits:

- **For effects of mutations and selection factors in Arctic environment**

Assignment

Observe the rabbits:

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- **After switching mutations from dominant to recessive and** *vice versa*

Observe the rabbits:

- **For effects of mutations and selection factors in Arctic environment**

- **After switching mutations from dominant to recessive and** *vice versa*

- **For changes in pedigree under different conditions**

- **Watch the video available at** http://spoken-tutorial.org /What_is_a_Spoken_Tutorial
- **It summarises the Spoken Tutorial project**

About the Spoken Tutorial Project

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- **It summarises the Spoken Tutorial project**

- **If you do not have good bandwidth, you can download and watch it**

Spoken Tutorial Workshops

The Spoken Tutorial Project Team

- **Conducts workshops using spoken tutorials**
- **Gives certificates to those who pass an online test**
- **For more details, please write to contact@spoken-tutorial.org**

Forum for specific questions

- **Do you have questions in THIS Spoken Tutorial?**
- **Please visit**

  http://forums.spoken-tutorial.org
- **Choose the minute and second where you have the question**
- **Explain your question briefly**
- **Someone from our team will answer them**

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- **More information on this Mission is available at http://spoken-tutorial.org /NMEICT-Intro**