

Predator and prey: read the population graph

Compare starting populations without treating the model as a wildlife forecast.

Name: _____ Date: _____

1. Use carrying capacity 100 and compare starting populations below.
2. Move Observation time to 0, 20, 40 and 80. Record one prey and predator pair at each time on the back.

Starting prey	Starting predators	Prediction	Observed pattern
40	8		
10	0		
0	20		

1. What happens without predators? Without prey?
2. Why can the graph show a fractional population?
3. Name two assumptions that would matter in a real ecosystem.

Teacher notes and answers

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With no predators, prey approach carrying capacity 100. With no prey, predators decline and prey remain zero.

These are continuous population variables, not a count of individual animals. Rounding a small value to zero does not model extinction.

The model has fixed rates, logistic prey growth, a single prey type, no migration, no age structure and no random events.

Teaching notes

Equations: $dN/dt = 0.6N(1-N/K)-0.02NP$; $dP/dt = 0.004NP-0.3P$. Time is in model units. Curves may damp toward equilibrium; repeated large cycles are not guaranteed.

Open the matching resource

<https://kiwibee.io/en/simulations/predator-prey-population-simulation>

Use the student page separately from this answer section. Model outputs are illustrative and depend on the stated settings.