Lesson Plan: Maths in the Wild – Predator and Prey

Subject: Mathematics (Links to Science & Ecology)
Duration: 50–60 minutes

Learning Intentions

- Understand what predator–prey relationships are.
- Use simple mathematical rules to model population change.
- Apply percentage increase and decrease.
- Interpret tables and graphs relating to real-world contexts.

Success Criteria

- I can calculate population changes over time.
- I can fill in tables using given formulas.
- I can sketch and label population graphs.
- I can explain what the graphs show in words.

Resources

- Maths in the Wild – Predator and Prey slides
- Predator–Prey Worksheet
- Predator–Prey MCQ
- Calculators
- Graph paper
- Whiteboard / projector

Lesson Steps

1. Starter: Engaging with the Context (5 minutes)

Show images of hares and lynx from the slides.
Ask students what they think happens to animal populations over time.
Introduce the idea that mathematics can help explain and predict what happens in nature.

2. Modelling Hares (Prey Only) (10–15 minutes)

Present the hare population rule: H_future = H + 0.2H.
Work through the first calculation together from an initial population of 60 hares.
Students complete the rest of the table on Worksheet Page 1 and sketch the graph.

3. Modelling Lynx (Predator Only) (10 minutes)

Introduce the lynx population rule: L_future = L – 0.1L.
Discuss why the population decreases without prey.
Students complete Worksheet Page 2 and sketch the graph.

4. Predator–Prey Interaction (15 minutes)

Introduce the combined equations linking predators and prey.
Explain what each term represents (birth, death, eating, food).

Students work in pairs to complete the table on Worksheet Pages 3–4 and label the graph.

5. Interpreting Graphs (5 minutes)

Students answer questions on Worksheet Page 5.
Encourage full sentences describing trends, increases and decreases.

6. Discussion and Real-World Links (5 minutes)

Use the wolf re-introduction slides to prompt discussion.
Students answer discussion questions on Worksheet Page 6 about ecosystems and modelling.

Assessment for Learning

Assessment is based on student engagement, accuracy of calculations, quality of graphs, and contribution to discussion.

Follow-Up / Homework (Optional)

Students extend the model for additional years or write a short reflection on how maths helps us understand the natural world. The MCQs could be given as homework,