This is the **Foundation Separate** version. Higher Tier (★) questions have been removed. All remaining questions are Foundation-level.

Ecosystems (B4a)

Specification reference: B4a

Q1. Explain the difference between a population, community and ecosystem.

[3 marks]

Q2. A food web is removed of all foxes. Predict and explain TWO effects on the ecosystem.

[4 marks]

Nutrient Cycles (B4c)

Specification reference: B4c

Q3. Describe the carbon cycle. Name ALL the processes that move carbon between living organisms and the atmosphere.

[4 marks]

Q4. Explain the process of eutrophication following heavy fertiliser application to farmland adjacent to a lake.

[4 marks]

Total: 15 marks

Ecosystems (B4a)

Q1 (3 marks)

Explain the difference between a population, community and ecosystem.

- Population: all individuals of one species in an area [1]
- Community: all populations of different species living in the same area [1]
- Ecosystem: the community plus the non-living physical environment [1]

Q2 (4 marks)

A food web is removed of all foxes. Predict and explain TWO effects on the ecosy…

- Rabbit population will likely increase (removed from predation pressure) [1]
- More rabbits → increased competition for grass → grass population may decrease [1]
- Other prey of foxes (e.g. mice) may also increase [1]
- Overall: loss of one predator can cascade through the food web — population imbalances [1]

Nutrient Cycles (B4c)

Q3 (4 marks)

Describe the carbon cycle. Name ALL the processes that move carbon between livin…

- Photosynthesis removes CO■ from atmosphere — converts to organic molecules [1]
- Feeding transfers carbon between organisms [1]
- Respiration (all organisms) returns CO■ to atmosphere [1]
- Decomposition: decomposers break down dead matter releasing CO■ / combustion also releases CO■ [1]

Q4 (4 marks)

Explain the process of eutrophication following heavy fertiliser application to …

- Fertilisers (nitrates/phosphates) run off into the lake [1]
- Algae grow rapidly on surface (algal bloom) [1]
- Algae block sunlight → aquatic plants below die [1]
- Bacteria decompose dead plants, consuming dissolved O■ → fish and other aquatic organisms suffocate [1]