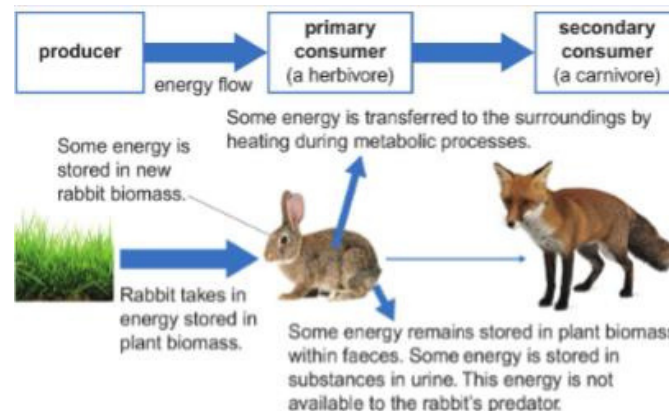


Knowledge Organiser: Biology, SB9a

- 1 All organisms that live and interact in an **ecosystem** form a **community**.
- 2 The community is made up of **populations** of different species. These **species** depend on each other for resources and so are **interdependent**.
- 3 Each **population** lives in a particular **habitat** within the ecosystem.
- 4 An **abiotic** factor is a non-living or physical factor examples include light intensity, temperature, soil pH
- 5 A **biotic** factor is a living factors, examples include new predators, food availability.
- 6 To **survive and reproduce**, organisms require a supply of materials from their surroundings and from other living organisms there.
- 7 A **parasite** lives on or in a host organisms. The parasite **gains benefit** from the relationships but this may weaken or even kill the host.
- 8 A **mutualistic** relationship is one in which two different species live closely with each other and **both gain benefit** from this
- 9 It is important for ecologists to be able to determine the **distribution and abundance** (how many) of a species in an ecosystem. If one species is in decline, it can affect the whole ecosystem.



$$\text{Population size} = \frac{\text{Number of organisms in all quadrats}}{\text{Total area of quadrats}} \times \frac{\text{Total size of area where organism lives}}{\text{Total area of quadrats}}$$

$$\text{Efficiency of biomass transfer} = \frac{\text{biomass transferred to the next level}}{\text{biomass available at the previous level}} \times 100$$

Knowledge Organiser: Biology, SB9b

10 **Sampling techniques** are used to estimate the size of a population.
Quadrats are often used to do this and they can be used in a random way or by placing them along a line through an area called a belt transect.

11 **Food chains** are used to represent the feeding relationships within a community. All food chains begin with a producer which synthesises molecules

12 **Producers** are eaten by **primary consumers** which in turn may be eaten by **secondary consumers** which may be eaten by **tertiary consumers**.

13 **Trophic levels** are defined as the feeding levels within an ecosystem. Trophic levels can be represented by numbers.

14 **Biomass** is defined as the amount of living material at each trophic (feeding) level.

15 **Food security** is defined as having enough food to feed a population

16 **Biodiversity** is the variety of all the different species of organisms on Earth, or within an ecosystem.

17 All **materials** in the living world are **recycled** through the **abiotic** and **biotic** parts of an ecosystem to provide the building blocks for future organisms. **Decomposers** play an

18 important part in the **carbon** and **nitrogen** cycle.

