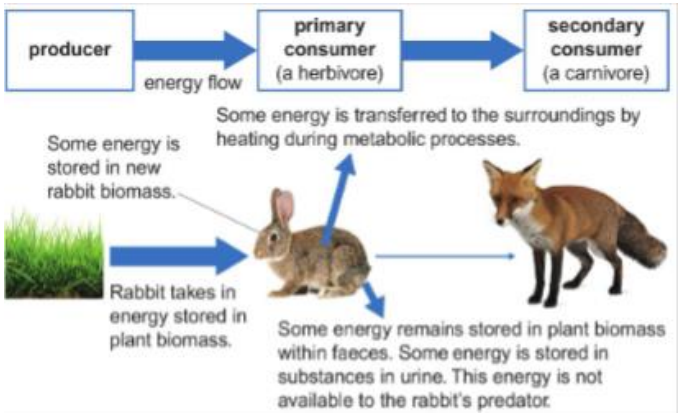
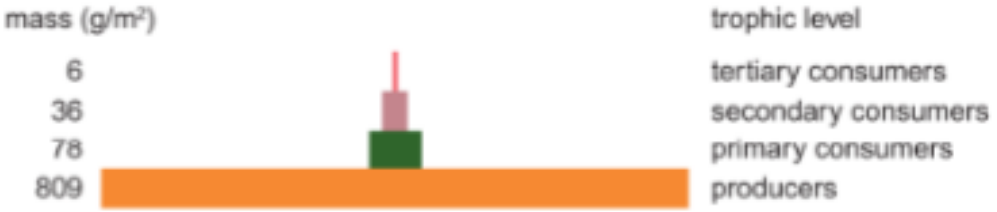
St Michael's CE High

Knowledge Organiser: Biology, SB9a

Jesus grew in wisdom and stature" Luke 2:52

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.





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

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

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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 r**elationships** within a community. All food chains begin with a producer which synthesises molecules
12	P**roducers** 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.
18	**Decomposers** play an important part in the **carbon** and **nitrogen** cycle.