

Energy Transfer Through an Ecosystem

Answer the following questions:

- Q1 What is an **ecosystem**?
- Q2 What is meant by the term “**niche**”?
- Q3 What is the difference between a **community** and a **population**?
- Q4 At which stage of a food chain would you find a **producer**?
- Q5 Give an example of a **secondary consumer**.
- Q6 **Why** are food webs more useful than food chains?
- Q7 There are twelve sycamore trees in a forest. Their environment is quite sunny, with plenty of nutrients in the soil. They share the forest with many other plants and animals.
- a) What is the **population** of sycamore trees?
- b) What is the **habitat** of the sycamore trees?
- Q8 The diagram below relates to four organisms in a forest.

oak tree → caterpillars → blackbirds → buzzards

- a) Is this a **food chain** or a **food web**?
- b) Choosing from the organisms in the diagram, name:
- i) one **producer**;
- ii) one **primary consumer**;
- iii) one **secondary consumer**.
- c) **Explain** why the oak tree is an **autotroph**.
- d) Choose the correct word from the box to complete the following sentence.

"The organisms in the forest are all part of the same ... "

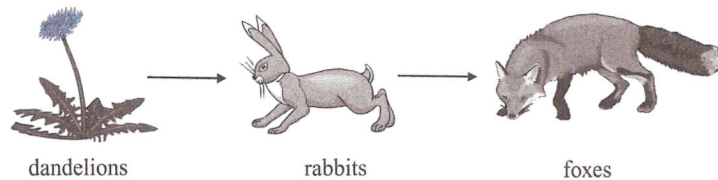
population ecosystem niche autotroph

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Q9 Name **three** ways that energy is lost as it is transferred between stages.

Q10 Approximately 1% of the Sun's energy that falls on a plant is incorporated into that plant. Only 10% of the energy in one stage passes to the organisms in the next stage. If 10,000 arbitrary units of energy are given out by the Sun and fall on plants which are eaten, **how many** of these arbitrary units will be incorporated into the secondary consumers?

Q11 A **food chain** involving three organisms is shown below. The **energy** at each level decreases as you move up the food chain.



- a) Where does the **energy** in the dandelions come from?
 b) What **life process** uses up most of the energy at each level in the food chain?
 Choose from the answers below.

transpiration ventilation oxidization respiration

Q12 Three **food chains** are shown below.

plant plankton → herring → gull

plant plankton → animal plankton → herring

plant plankton → shrimp → herring → seal

Using the information in the food chains, construct a **food web** that includes all the organisms.

I feel sorry for the plankton...

Make sure you know **all the definitions** — it'll make understanding the topic a lot easier. Remember that energy transfer in a food chain **isn't very efficient**. Learn all the ways in which energy is lost.