1 Ecosystems and energy flow – Part 1

Name: _____ Class: _____ Date: _____

Vocabulary 词汇

Write each word three times. 把每个单词抄写三遍。

English	中文	Write it 3 times (English)		
ecosystem	生态系统			
Producers	生产者			
Consumers	消费者			
food chains	食物链			
food web	食物网			
trophic level	营养级			

Recall

You already know how living things depend on each other and their surroundings:

- Plants make food from sunlight; animals eat plants or other animals.
- A food chain shows who eats whom.
- Energy flows through nature and is gradually lost.

This sheet lines up how ecosystems move energy. Each idea has a short worked example.

New ideas

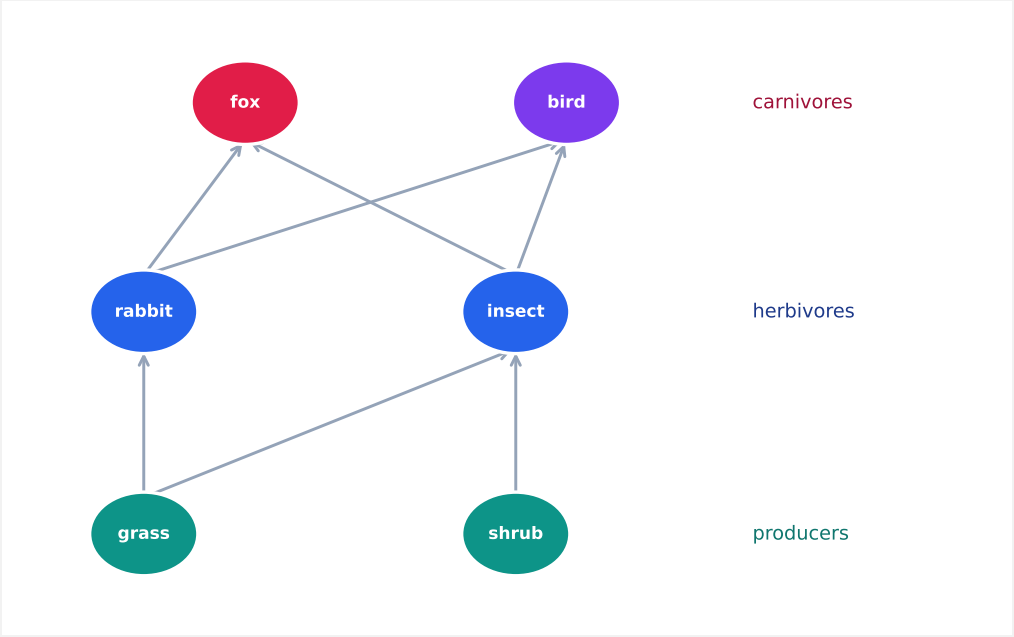
1 Ecosystems

An **ecosystem** 生态系统 is all the living things in an area together with their non-living surroundings (water, soil, air). Energy enters as sunlight and flows through the living parts.

2 Producers and consumers

- **Producers** 生产者 (plants) capture sunlight to make food.
- **Consumers** 消费者 eat producers or other consumers.

They form **food chains** 食物链 and, joined together, a **food web** 食物网.

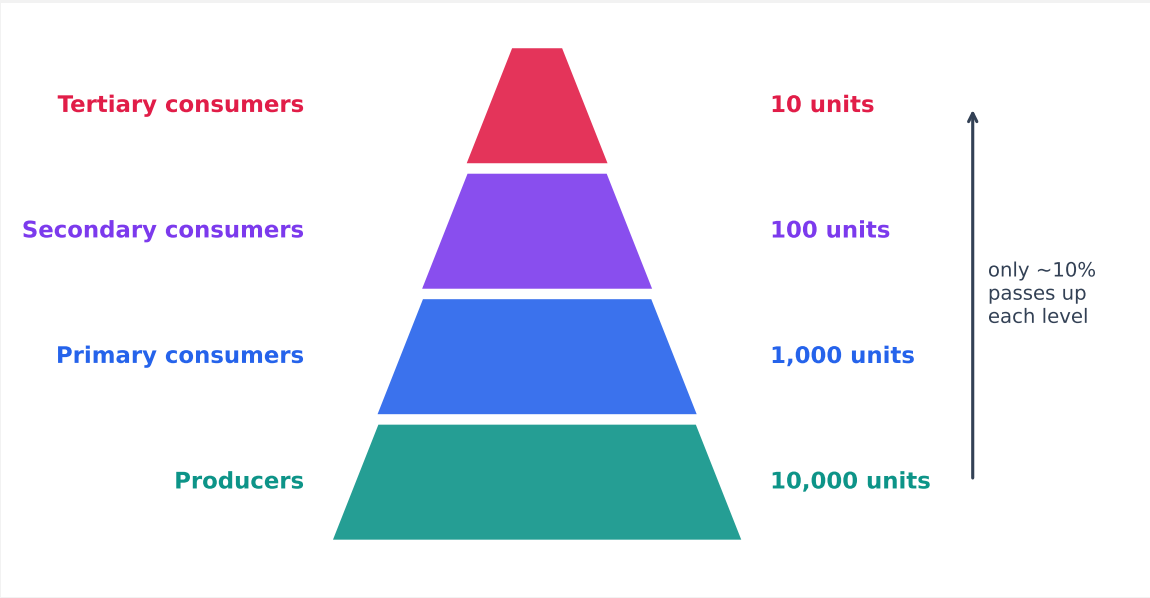


3 Trophic levels

Each feeding step is a **trophic level** 营养级: producers, then primary, secondary, and tertiary consumers.

4 The 10% rule

Only about **10%** of the energy passes from one trophic level to the next; the rest is lost as heat.



Worked example. If producers hold 10,000 units of energy, the next level gets about 1,000, then 100 –which is why top predators are few.

Watch out: so much energy is lost at each step (about 90%) that food chains rarely have more than four or five levels –there is not enough energy left to support another.

Practice

Try these in order. The methods are all above.

2.1 State what an ecosystem includes, both living and non-living. [2]

2.2 State the difference between a producer and a consumer. [2]

2.3 About what percentage of energy passes to the next trophic level? [1]

2.4 A producer level holds 5,000 units of energy. Estimate the energy at the next two

levels. [2]

2.5 Explain why food chains are usually short (only a few levels). [2]